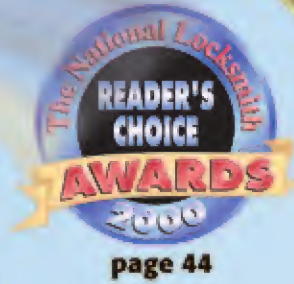


June 2000
Volume 71
No. 6
\$5.00

CODES!
Corbin/Kennedy Tool Box
page 120



The National Locksmith®



Frustrated customers
rely on Locksmiths
to have the right tools!

page 16

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On The Cover...



New car opening tools now available offer opening procedure options that eliminate the need to know the various linkage arrangements.

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The National Locksmith® ISSN #0364-3719 is published monthly by the National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107-1861. Periodicals postage paid at Bartlett, Illinois 60107 and additional mailing offices USPS 040110. Subscriptions \$41.00 per year in the USA; \$54.00 per year in Canada; \$67.00 in all other countries. Single copies \$5.00 each. Postmaster, please send change of address to National Publishing Co., 1533 Burgundy Parkway, Streamwood, Illinois 60107-1861. ©2000 by the National Publishing Company. All rights reserved. Printed in the U.S.A.



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COMMENTARY



Boot up and Prosper!

I want to tell you about one of the biggest innovations in the history of safe work. Back when Dave McOmie started writing about safes for *The National Locksmith*, there was precious little information available to help you on the job. Whatever you knew, you knew. What you didn't know... well, you just had to figure that part out on your own.

The next step was a series of books that Dave has written, is still writing in fact, and which we publish. And now, in the year 2000, we take the next big step... Safe Software. Yep, we've put together a set of two CD Roms which contain every word Dave has ever written, and every photograph we've ever published.

One CD contains each and every safe book with every one of the thousands of pages, and thousands of photographs, complete with specs and precise opening instructions. The other CD contains every article Dave has written for *The National Locksmith*, from when he started in 1986 all the way up to 2000. Also on this CD is every newsletter and McOmie File written by Dave and published by the *National Safeman's Organization* (NSO). This CD also contains literally thousands of pages of photos, details, measurements, and opening procedures.

Perhaps the best part of both pieces of software is that they are completely indexed. Dave was very insistent that although the CDs each contain almost 5,000 pages, each one of them had to be very fast and simple to use. Therefore, both of them feature an easy index. Just scroll down to the safe you want to see, mentioned alphabetically by name, and make one single click. Boom! You're there.

As if that weren't enough, we have also created a visual index where you can see a thumbnail version of each page. Eyeball the safe you want to open, and click on the thumbnail. Instantly, you're looking at a full size version of the

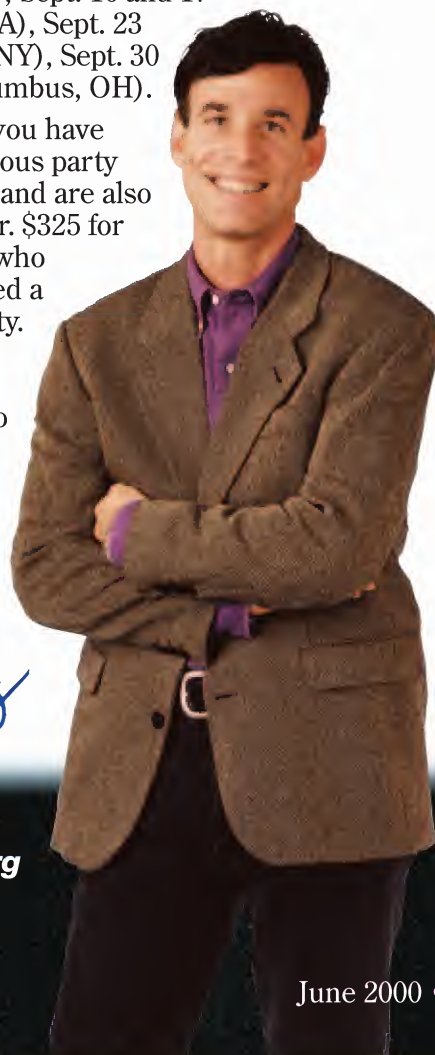
information you wanted. Although there is a lot more I could say, let me mention that you not only have instant access to almost every safe and vault ever made, but you can also print out whatever photographs and instructions you want. Just print what you need, and carry it right to the job with you. That way, even if you don't have a CD drive for your laptop, you can still arm yourself with the best safe software ever.

NSO members: there is a big discount for you on the software. Watch your mail.

If you'd like to learn right from the horse's mouth, think about attending one of Dave's upcoming two day Penetration Parties and learn from the master. Dates are: Aug. 5 and 6 (Warren, MI), Aug. 19 and 20 (Vancouver BC), Aug. 26 and 27 (San Diego, CA), Sept. 16 and 17 (Philadelphia, PA), Sept. 23 and 24 (Bronx, NY), Sept. 30 and Oct. 1 (Columbus, OH).

Cost: \$275 if you have attended a previous party hosted by Dave and are also an NSO member. \$325 for NSO members who have not attended a Penetration Party. \$375 for non members. Send check payable to Dave McOmie, 4549 NW Trout St., Camas, WA 98607.

Marc Goldberg



Have questions? Want free technical help?
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www.TheNationalLocksmith.com

Marc Goldberg
Publisher

June 2000 • 5

Mango's Message

The Key to Prison

It was a brisk spring morning with a mist of dew blanketing the Appalachian Mountains. The 7:00 a.m. alarm broke the calming silence as Joe Locksmith wipes the crusty build-up from around his eyes. He stumbles into a steaming hot shower, slaps on some WD-40® aftershave, grabs a cup of Mr. Coffee (black) and heads into the store.

His first customer hands him a safe deposit box key for duplication. Joe Locksmith obliges, charges the appropriate fee and the satisfied customer goes on their merry way. The next thing you know, local law enforcement agents storm the locksmith's establishment, slap a pair of handcuffs on, inform Joe Locksmith that he is in violation of SB2926/HB2509, read him his memorandum rights then transport him to the local penal institution.

Is this the beginning of another Stephen King or Michael Crichton novel? No, actually it was written by the reclusive, yet critically acclaimed Pulitzer Prize winner, Gregorio Mangold. It's soon to be in a book store near you.

All kidding aside, this story may have been fictional, but the reality of it came closer than you know.

Could you ever have imagined a time when it would be a Class A misdemeanor to duplicate a safe deposit box key? That fact was almost a reality just a few months ago.

On January 24, 2000 the "Tennessee Bankers Association" (TBA) introduced the "Anti-Duplication of Safe Deposit Box Keys Act" designed to prevent anyone from

duplicating a safe deposit box key from any financial institution without expressed written permission by the institution where the box resides.

The following is the text of the original legislation supplied by Tim McMullen, Government Affairs Manager for the Associated Locksmiths of America (ALOA):

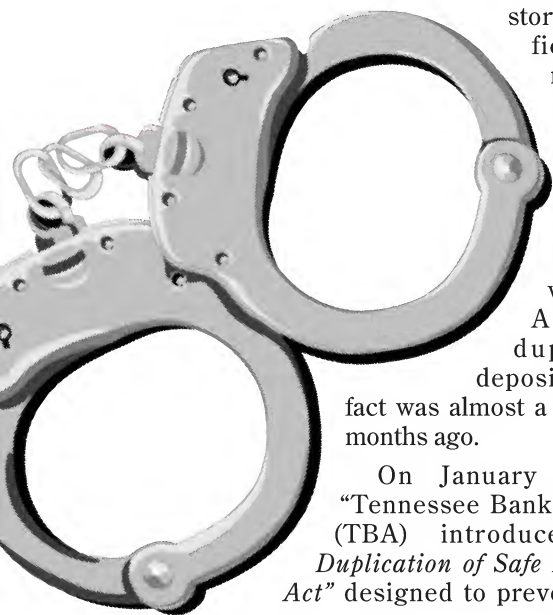
Subj: RE: Slotted Cutter Banking Bill Info.

Date: 5/2/00 12:47:51 PM Pacific Daylight Time

**SENATE BILL 2926/HOUSE
BILL 2509**

AN ACT to amend Tennessee Code Annotated, Title 39, relative to unauthorized duplication of safe deposit box keys.

**BE IT ENACTED BY THE
GENERAL ASSEMBLY OF
THE STATE OF
TENNESSEE:**



Greg Mango

**Greg Mango
Editor**





SECTION 1. Tennessee Code Annotated, Title 39, Chapter 14, Part 1, is amended by adding the following new section:

Section 39-14-151.

(a) This section may be cited as the "Anti-Duplication of Safe Deposit Box Keys Act".

(b) Unless so authorized it is an offense for any locksmith or business engaged in the production and duplication of keys to possess keyblank stock and keyblank molds intended for the sole creation of safe deposit box keys; such keys intended for the sole use of financial institutions and their lessees.

(c) It is an offense for a safe deposit box lessee to duplicate a safe deposit box key unless so authorized by the lessor of the safe deposit box.

(d) A violation of this section is a Class A misdemeanor.

SECTION 2. This act shall take effect July 1, 2000, the public welfare requiring it.

It didn't take long for members of various Tennessee locksmith associations along with ALOA directors and Government Affairs Manager to step up to the plate. Soon after their involvement, an amendment to House Bill 2509 was introduced. The amended House Bill and status history follows:

AMENDMENT to Senate Bill No. 2926 House Bill No 2509

by deleting sections 1 and 2 in their entirety and by substituting instead the following:

SECTION 1. Tennessee Code Annotated, Title 39, Chapter 14, Part 1, is amended by adding the following new section:

Section 39-14-151.

(a) It is an offense for any person, locksmith, or business engaged in the production and duplication of keys to duplicate the safe deposit box key of any bank, savings institution, credit union, or their affiliate bearing the legend BANK KEY DO NOT DUPLICATE or CREDIT UNION KEY DO NOT DUPLICATE," unless authorized in writing by the lessor or owner of the safe deposit box facility.

(b) It is an offense for a safe deposit box lessee to duplicate or have duplicated a safe deposit box key unless so authorized in writing by the lessor or owner of the safe deposit box facility.

(c) A violation of this section is a Class C misdemeanor punishable only by a fine of fifty dollars (\$50.00).

SECTION 2. if any provision of this act or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to that end the provisions of this act are declared to be severable.

SECTION 3. This act shall take effect on June 1, 2000, the public welfare requiring it.

STATUS HISTORY

01/21/2000 - Filed in SENATE

01/24/2000 - Introduced To SENATE

01/24/2000 - Filed in HOUSE

01/26/2000 - Introduced to HOUSE

01/26/2000 - To SENATE Committee on COMMERCE, LABOR AND AGRICULTURE.

01/27/2000 - In HOUSE. Read second time.

01/27/2000 - To HOUSE Committee on JUDICIARY

02/02/2000 - In HOUSE Committee on JUDICIARY: Referred to Subcommittee on CRIMINAL PRACTICE.

02/22/2000 - In SENATE Committee on COMMERCE, LABOR AND AGRICULTURE: Indefinitely postponed.

03/21/2000 - In HOUSE Committee on JUDICIARY: Subcommittee on CRIMINAL PRACTICE recommend passage with amendment.

03/29/2000 - HB2509 dies in the General Subcommittee



I contacted the Tennessee Bankers Association and spoke with Theodore Morrison, Jr., Associate Director of Government Relations. On behalf of the TBA, the catalyst that initiated this legislation was cited past cases of fraud. Their intention was to reduce such cases.

It was the locksmith industry's contention that the banking institution wanted to shift fraud liability to them and restrict a provided service. Both parties had their best interest in mind.

Thanks to a few loyal, devoted and determined locksmiths who sat in committee meetings, made phone calls to Senators, sent letters, faxes and e-mails, the "Anti-Duplication of Safe Deposit Box Keys Act" was ultimately stalemated. Even when faced with what seemed insurmountable odds against a very powerful banking industry lobbyist, the tiny locksmith industry prevailed. Had it not been for those locksmiths involved in this fiasco, we would now be prohibited or severely limited from duplicating safe deposit box keys. House Bill 2509 would have most assuredly passed without opposition.

This is just one more example of the importance of our state, local and national association members keeping informed of pending legislation. In recent years we have found ourselves defending our livelihood against the alarm industry, electrician's unions and now the banking industry. So far we have been successful preserving our position. It just goes to show that the locksmith industry can thwart imposing legislation if it is united. The key to success is teamwork. **TNL**

Letters

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and length.

Wrong Biting

In the April issue of *The National Locksmith* page 71, I found a boo-boo. The code C16 is 31311, not 31331. This is obvious by looking at the "easy reading wafers" in the picture.

Brad
Ohio

Editor's Note: That was a test Brad. We just wanted to make sure you were actually reading the magazine. Good job, you passed. Greg Mango

MLANJ Trade Show

I just returned from the Master Locksmith's Association of New Jersey (MLANJ) trade show and feel that a comment is in order. Since the area I am from is between association chapters, the only time I get to interact with old friends and manufacturer reps is at the annual trade show. I go there expecting to see and play with new tools and products. I can then buy with knowledge gained from this experience.

This year I traveled with another locksmith from my area in a blizzard to attend this show. We spent two hours on the road and when we got there the exhibit area had seriously shrunk in size. This was due in part from the lack of manufacturer participation. Evidently the exhibitors don't feel it is profitable to attend and this becomes a self-fulfilling prophecy.

I know that if I stopped spending advertising dollars, my new customers would no longer be aware that I exist. Ultimately, my sales would fall off and I would eventually cease to exist. Perhaps the format is in need of change.

I can remember a time when a number of distributors would bring dead stock along to the show (the Yankee convention) and sell at greatly reduced prices to attract customers to their booth. I can also remember when manufacturers waited until Sunday at the close of business and made it a point to sell their display items at a tremendous discount. This not only attracted attendance to the final day, but also eliminated the need to bring all the items back home. Both of these procedures enticed people to attend.

I also remember when advertising pieces were given out in abundance to attendees not only as a thank-you for attending and looking at their products, but as a way to infiltrate their name into the various shops in the area. When I went to this show, most of the vendors who had given out "gifts" said they were out of stock. To make matters worse, a great deal of the booths didn't even have a representative standing



there to answer questions or give out brochures. What did they come for if they were not going to stand at their booths?

For me, going to a locksmith show means that I have to close my business for that day and lose whatever money I could conceivably have made. To make that decision, I trade off the money for the knowledge and skills I would gain by participating in the show. At this rate, I will be better off just staying open and reading catalogs. Does this make sense to all the distributors and manufacturers? This locksmith wants to know!

Larry Kanzer
Pennsylvania

Publisher's Note: Larry, you make some really great points and they are ones that Greg and I have been making for a while. And that is for exhibitors to take the trouble and make their booths exciting for locksmiths to see. New product introductions, giveaway items and discounts all go a long way toward making your experience a good one at a trade show.

The National Locksmith
1533 Burgundy Parkway
Streamwood, IL 60107
Attn: Editor

To be fair, I must mention that the knife cuts both ways. There are a great number of shows for a manufacturer to attend, and this adds up to a great deal of money. Exhibitors these days pick and choose which shows they will book based on attendance. Therefore, if the number of locksmith's attending a given show drops over a number of years, then exhibitors will stop coming and investing so much in their booths.

We continue to urge trade show exhibitors to make their booths interesting and compelling. We also ask that locksmith's attend their local trade show

and support the organizations which put them on. You can't believe how much work it is to pull off a trade show. Support from both exhibitors and locksmiths benefits everyone! Marc Goldberg

News from the CPSC (U.S. Consumer Product Safety Commission)

WASHINGTON, D.C. - In cooperation with the U.S. Consumer Product Safety Commission (CPSC), The Lane Co., of Altavista, VA is calling for a renewed search for cedar

chests to replace their locks. In 1996, Lane recalled 12 million chests with lids that automatically latch shut when closed, following reports of six children suffocating inside the chests. CPSC and Lane have since become aware of another suffocation death and two near fatalities to children who became entrapped in the chests when the lid closed and automatically latched shut.

All "Lane" and "Virginia Maid" brand cedar chests manufactured between 1912 and 1987 need to have their locks replaced. The chests are often handed down through families, and it is likely that many were purchased second-hand.

Lane is providing new locks, free of charge, that will prevent entrapments because they do not automatically latch shut when the lid is closed. The new locks are easy to install by consumers in their homes.

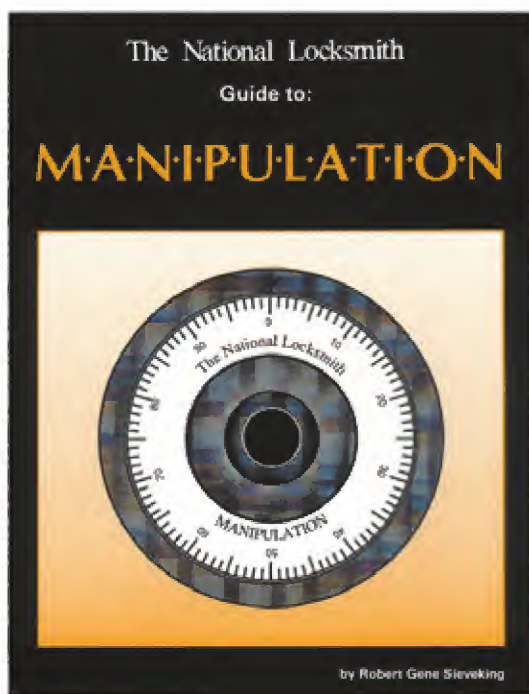
To prevent another tragedy, CPSC and Lane are urging consumers to check their "Lane" and "Virginia Maid" brand cedar chests. The brand name "Lane" or "Virginia Maid" is located inside the cedar chest. If the lid latches shut without depressing a button on the outside of the chest, the lock needs to be replaced. Contact Lane toll-free at (888) 856-8758 anytime or access their web site at: <http://208.0.251.67/public/locks/request.asp> to order the free replacement lock. Consumers should have the chest's serial and style numbers, which are branded on the outside bottom or outside back of the chest, available when contacting Lane.

Shocked at the Vindication

I am writing in response to the April letter "Take it or Leave it" by Anthony Scalia. I was shocked at the unprofessional manner in which locksmith Anthony Scalia acted when he felt stiffed for a canceled job and at the way he pursued a vendetta against this customer.

I agree that all independent businesses have the right to charge whatever they want and the customer is responsible to pay the agreed upon price once the work is satisfactorily completed. The problem occurs when there is no agreed upon price before the job is started. That is why Contracting Law states the need to include prices to

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#MAN - 1

establish a valid and legal contract.

When Mr. Scalia took a job without first quoting it, he failed to establish a good contract with his customer. He put himself in a position to negotiate prices at the job site, with the customer's right to refuse the job.

The California Contractors Board has stated that in conflicts with a customer, they would hold the contractor responsible to know the laws, regulations, and rules pertaining to contracting. He is supposed to know these facts as a

professional business person.

If you don't quote a price, price range or hourly rate, then you haven't completed the contract and leave yourself open to losing money and your legal recourse. Although it was unfortunate for Mr. Scalia, it was his own fault, not the customers.

The second thing Mr. Scalia did wrong was to call his competitor and discuss what he was charging his customer. That is called "price fixing" and it is against the law.

Mr. Scalia was actually very fortunate that his customer called him back to talk prices and cancel the job. At that point he was still out 10-minutes of his time. He should have left it at that and counted it as a lesson learned. Instead, he acted wrongfully in seeing to it that his customer suffered for inconveniencing him.

Shame on you Anthony.

*Joe Rechenmacher
California*

She Was "Fuming"

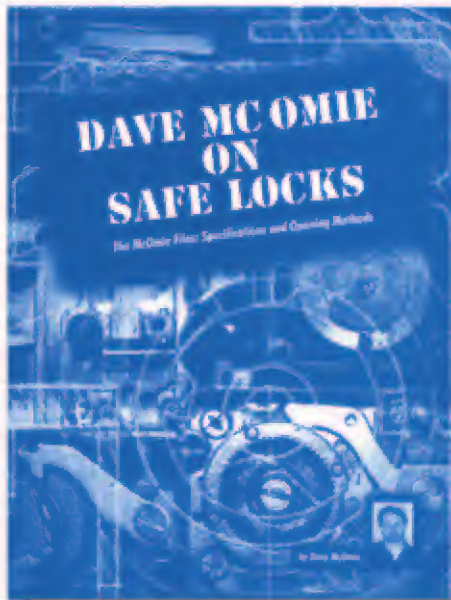
I just wanted to share an experience I had recently. I was doing some work in downtown San Francisco when I received a call from a parking valet at 12:30 a.m. It seemed that the keys were lost for a 2000 Infinity. Naturally, the model is very important to determine an opening procedure (I-30, J-30, Q-45, QX-4, G-20, or M-30). Because the model letter designation on the vehicle is written in cursive, the valet could not determine the exact model designation. (I guess his cursive handwriting skill was not very good). I was only a few blocks away so I decided to drop by and see if I could help.

The vehicle was a 2000 Infinity I-30, a dealer only vehicle! When the lady heard that she was stranded for the weekend, she was breathing fire! I let her know that she would have to call the dealer Monday morning and then wait a business day or so to receive her new keys. When I left she was screaming at the valet so loud, she was setting off car alarms with motion sensors. The worst part was that she was only visiting San Francisco for the night with a few of her friends.

I have never come across this situation before. I told the lady that we as locksmiths, are also in disagreement with the vehicle manufacturers for making locksmith unfriendly security systems. She was given the Infinity "800" number to voice her complaint, and share her true feelings. I don't know who got it worst that night, the valet who lost her keys, or the Infinity people.

*Raymond
California*

Dave McOmie on Safe Locks



Almost 300 pages of information, photographs and illustrations give you every scrap of information about a huge variety of safe locks.

[CLICK HERE TO LEARN MORE](#)



#DMSL - 1

COVER
STORY!



Car Opening: *to Spread or not to Spread?* That is the question.

by Tom Lynch

In the good old uncomplicated days, there were only a couple of car opening methods you could choose between. Linkages could easily be manipulated with a flat bar opener. And wind wings gave locksmiths another option if they wanted to pass a tool directly into the car without touching the linkage.

The good old days are pretty much gone now. Auto manufacturers have shielded many linkages, and wind wing windows have all but disappeared in most cases. That has led to new thinking and methods of opening the locked car. Do you attack the linkage, or do you find a way to pass a tool into the car?

You now have some alternate weapons from which to choose when you fight the battle to open the locked automobile. This article will cover methods which allow you to ignore the linkage in order to introduce a tool directly into the car itself. Two distinct classes of tools now help you do this job. One is the inflatable door spreader. The other is a tool which allows you to jack or spread the door from the

frame. Locksmiths have been debating how well these devices work and whether they have the potential to cause damage. Let's take a look at these tool categories to see how they work, and if you need to be concerned about vehicle damage.

The original innovation in the current arena of door spreading was introduced by HPC with their "Air Wedge™." HPC developed the Air Wedge™ to open vehicles by spreading the corners of doors from the body to allow access. The Air Wedge™ is a small, thin profile, extremely flexible pouch which can be introduced between the door and frame. When inserted in a proper location, it can be inflated. The Air Wedge™ is made from a very durable, strong material. Inflating the bag opens a small gap between the door and frame. Once spread, a long rod can be slipped into the passenger compartment to unlock the door. To facilitate this method, HPC also developed two separate long, flexible through-the-car tools which can be passed into the gap to unlock the car. The CO-78 features a patented closeable loop which can be used to grasp buttons and handles. The CO-80 has a bent rubber end which allows the locksmith to flip switches, lift buttons and hook handles. The Air Wedge™ from HPC was the first tool to allow locksmiths to easily open a wide variety of cars with complex linkages, and it represents an innovation in thinking. Simply stated, the tool performs well in the field, and we will look at that shortly.

Success sometime causes others to bring similar tools to market. Thus, High Tech Tools, PRO-LOK and Tech-Train each have similar products. Nonetheless, some locksmiths still question whether this method should be used over the traditional "in the door" methods. Yet other locksmiths believe that traditional methods and tools have been made obsolete and replaced by the spreading concept.

Perhaps the most important benefit to spreading a door is that it allows the locksmith to avoid internal damage to linkages, pawls, and possibly air bags. Technically the vehicle's air bag will not be harmed in any way by using the traditional in the door methods. However, the overall fear that many have about the deployment of an air bag has allowed these spreading devices to become a tool of choice for some. So the question remains as to whether they are the magic "master key" for all autos and are they safer than the traditional methods? Let's find out!



1. All the "AIR" wedges tested and used.



2. A variety of traditional wedges.



3. An old timer - the Clear View - in the top left.



4. An air wedge is in an older Pontiac LeMans.



5. The door was left pulled away from the car frame.



6. An air wedge is in a Dodge Caravan.

Inflatable Door Spreaders:

In *photograph 1*, are the inflatable tools mentioned in this article. The two on top are from left to right, the HPC "Air Wedge™" and the Tech-Train "Win-Bag." On the bottom from left to right are High Tech Tools "Air Jack" and the PRO-LOK "Pump Wedge." All appear to be very similar in design to that first HPC product, some with slight modifications.

These bags typically have an inflated pressure of 220 lbs. with a maximum of 440 lbs. and run around 2-3 mm thick. When inflated they can roughly measure 2.75". HPC's Air Wedge™ is vinyl reinforced with genuine rubber inflating bulbs. The units is square in design and utilizes a release valve that is depressed to quickly relieve the air pressure.

Photograph 2, shows a variety of traditional wedges that are supplied by the manufactures to be used in conjunction with auto entry attempts and with inflatable door spreader. On the top left is the wedge by HPC, in the middle is a Tech-Train wedge, on the right and bottom are High Tech Tools wedges.

In *photograph 3*, you will see a tool in the top left from PRO-LOK called the "Clear View Tool AO63." Traditional wedges are also shown. So now that we have met the tools, let's open some cars.

In *photograph 4*, HPC's Air Wedge™ has been inserted in an older Pontiac LeMans. In *photograph 5*, you can see how the door was left pulled away from the car frame after inappropriate, repeated and severe entry attempts. It is this type of scenario which causes concern, but read on and you will learn how to avoid just such a problem in the first place, or how to resolve it.

In *photograph 6*, the Air Wedge™ is placed in a Dodge Caravan. In this application the tool worked very well to spread the door. However, I applied excessive pressure to the passenger sliding door, creating the appearance that the front door was pulled out as in the earlier photograph. The truth is that the rear sliding door was the victim, *see photograph 7*. In both cases, the inflatable units were fully expanded to test the end result and as in most entry attempts, the passenger side is the preferred choice.

The key here is when I mention that I "fully inflated" the tool. Not much common sense is needed to realize that the object here is not to inflate the tool to the maximum. Instead, the goal is only to create a gap sufficient to allow the locksmith to pass another tool inside the opening. As you inflate the tool, just watch to see when you have made a small gap, stop inflating, and insert your tool. If I had used this correct procedure in the first place, I would have had no problem. Just as you can damage a linkage with a car opener, so can improper use of inflation have consequences. Fortunately, it is easy to avoid problems by using a minimum of care.

In *photograph 8*, you can see the PRO-LOK "Pump Wedge" in a rather tight door that suffered no ill effects of an over inflation. Of all the vehicles I tested with all of the inflatable door spreaders, very few suffered any distinguishable damage, even though I used excessive inflation in many cases. For the ones that may have had some window frame distortion from over inflation, repair is minimal and easily corrected. Simply roll down the window and placing your knee against the inside door panel and "gently" giving the top corner of the door a tug. DO NOT PULL HARD.



7. The rear sliding door was the victim.



8. The PRO-LOK wedge in a rather tight door.



9. A 2000 Honda Odyssey.



10. The Tech-Train Jiffy Jack.



11. The High Tech Tools Ultra Jack 2000.



12. You can see that they are all similar in design.

As good as they are, the inflatable door spreaders are not a cure-all, nor are they represented to be. In *photograph 9*, you will see a 2000 Honda Odyssey. This vehicle has an extremely tight door and the rear passenger window extends right up to the front door frame. Use of the wedge was limited and excessive pressure applied upon the rear window could have caused damage. When the inflatable spreader was removed, slight distortion on the frame was noted and not easily correctable.

The use of these inflatable tools has shown that they are beneficial in the field when used correctly. Like any tool, used incorrectly, they can create some damage, although minor in most cases, and generally correctable. The same is true of virtually all car opening tools. Used incorrectly, the linkage tools can also create damage. That's one reason it is so important that the public call a trained locksmith versus an unskilled worker. Remember that the inflatable tools are meant to simply create an opening large enough to facilitate a tool's entry and that's it. While no one tool may solve every situation, this type of tool should be a welcome addition to your arsenal. The concept originally introduced by the HPC Air Wedge™ is an excellent one.

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Jack Tools:

Along with the air bag wedge development, new devices called "Jack" tools have hit the streets with a vengeance and have also claimed their corner of the arena. In *photograph 10*, is the Tech-Train "Jiffy Jack." In *photograph 11* is High Tech Tools' the "Ultra Jack 2000.

Viewing the jack tools from their sides you can see that they are similar in design with only slight differences. (See *photograph 12*.) All have the same distinctive hook to grab the backside of the door. (See *photograph 13*.) Both are made from plastic, but High Tech tools boasts a self-lubricating aspect to theirs.

In *photograph 14*, you can see the High Tech Tools "Ultra Jack" positioned to open a Lincoln Continental. It inserts very easily and works in conjunction with a large rubber wedge to use as a pivot to pry the doors open as in *photograph 15*. A better view of the tool in position with the wedge can be seen in *photograph 16*.

The "Jiffy Jack" offered by Tech-Train uses a choice of



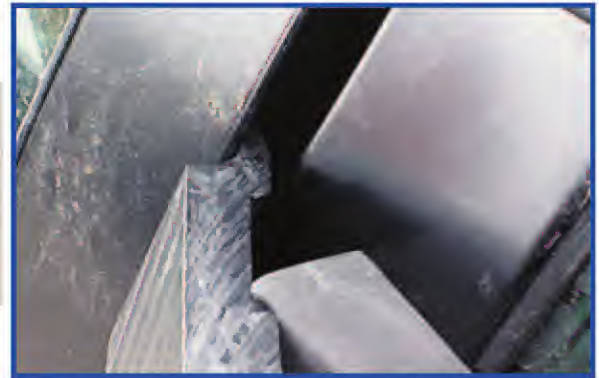
13. All have the same distinctive hook.



14. The high Tech Tools "Ultra Jack" positioned to open a Lincoln Continental.



15. A large rubber wedge is used as a pivot to pry the doors open.



16. A better view of the tool in position.



17. The "Jiffy Jack" with its aluminum rubber backed base plate.



18. Notice the size of the opening created by this tool.

two jack tools to use in the event of a smaller opening between the doors and the pillar, whereas High Tech tools has only one and seems to be universal. In *photograph 17*, you can see the "Jiffy Jack" with its aluminum rubber backed base plate in place for an opening. In the *photograph 18*, you can clearly see the size of the opening created by this tool when pressure is applied.

Placing your fingers into these openings is a big mistake and should not be attempted. The use of both of these tools suggests that an inflatable be used to supplement the initial opening. For the purpose of testing for damage, I applied extensive pressure and repeated attempts to try to create some adverse effect. The opening gaps you see are not needed to complete an opening. The PRO-LOK "Clear View" window wedge can substitute as a door Jack. It has a sift pivot to work from so if you have one don't throw it away.

Power Wedge™: The Power Wedge™ from HPC is a new spring loaded compound lever that also spreads the vehicle door away from the body allowing for the easy entry of a

"Through the Car" opening tool. Neither an inflatable spreader, nor a jack, the Power Wedge™ slides into the opening between the vehicle's door and frame at the top of the door. The rubber-coated tips protect the vehicle from scratches and the adjustment knob allows you to control how wide you need the door to open. Simply turn the knob clockwise and watch as the door slowly opens giving you room to use a car opening tool to open the vehicle safely from the inside.

This tool is said to be excellent for wrap-over doors, and with its rubber-coated tips slides in easily and protects the vehicle's finish. (See *photograph 19*) This is a new player among the other tools already mentioned, and while its goal is also to open a gap, its methodology is unique.

Conclusion:

Inflatable Door Spreaders: The results were impressive. You can create an entry gap into many makes and models of cars through which you can pass a tool. Caution must be noted that when attempting to spread a



19.
The HPC POWER
WEDGE.

frameless window (like an Acura TL) enough to insert a tool, you must be very aware of the "Anti Rattle" clips on the top of the window. These clips can be overlooked and when trying to spread a window, applies great pressure on the glass. Another note is that the glass used in autos has changed from the heavily tempered style to a more flexible composite, so there appears to be more tolerance on our side. To avoid problems, just don't spread the door more than necessary.

Jack Tools: We opened the cars and we didn't do damage to them. Again, a little common sense goes a long way. Just don't spread any more than you have to. But we do see application for these tools for professional locksmiths.

Power Wedge™: A new way to open a gap into the car. Allows you to control precisely how much of an opening you create.

Final Thought:

The damage caused by these units was minimal at best, but not exclusive enough to be over looked. The use of these tools needs to be looked upon as an addition to your arsenal and applied with good judgment. All the tools tested performed well as tested. Any of these products would make a good addition to your current arsenal of opening tools.

Leave your crowbars, pry bars and homemade devices alone and invest in these quality products. It is not uncommon to hear of someone attempting to utilize a construction tool to achieve an opening, however, the forensics left behind cannot come close to the performance of these tools.

For more information on any of these products contact:

High Tech Tools - Circle #251
 1400 SW 1st St.
 Miami, FL 33135
 Phone: 800-323-8324
 Fax: (305) 649-7014
 E-Mail: sales@hightechtools.com
 Web: www.hightechtools.com

Circle #253 - PRO-LOK
 655 N. Hariton St.
 Orange, CA 92868
 Phone: (714) 633-0470
 Fax: (714) 633-0470
 Web: www.pro-lok.com

HPC, Inc. - Circle #252
 3999 N. 25th Ave.
 Schiller Park, IL 60176
 Phone: 800-323-3295
 Fax: (847) 671-6343
 E-Mail: hpc@hpcworld.com
 Web: www.hpcworld.com

Circle #254 - Tech-Train
 P.O. Box 15401
 Pensacola, FL 32514
 Phone: 800-356-0136
 Fax: (850) 478-7410
 E-Mail: techtrain@techtrainproductions.com

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#SUB - 1,2,3,4,5,6



The 1999 Pontiac Montana

part 1

by Michael Hyde



1

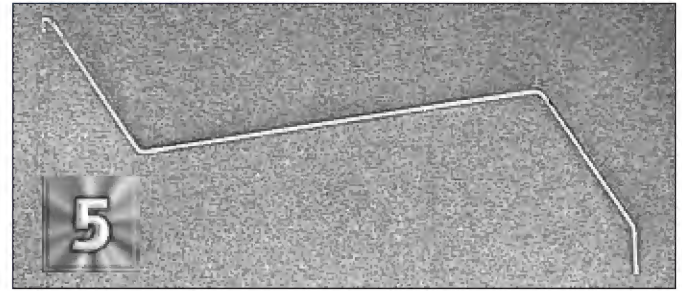


You are probably wondering what is a Montana Van? Well Pontiac started to change the name of its minivan that was named the "Trans Sport". In 1998 model year, Pontiac called it the "Trans Sport Montana." GM had several western style commercials to ease us into the name. Now in the 1999 model year the "Trans Sport" name was dropped.

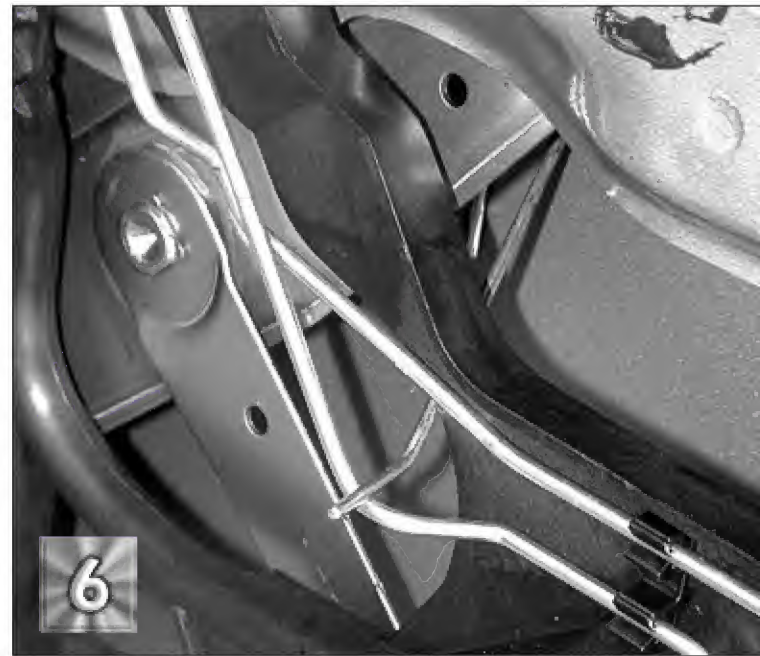


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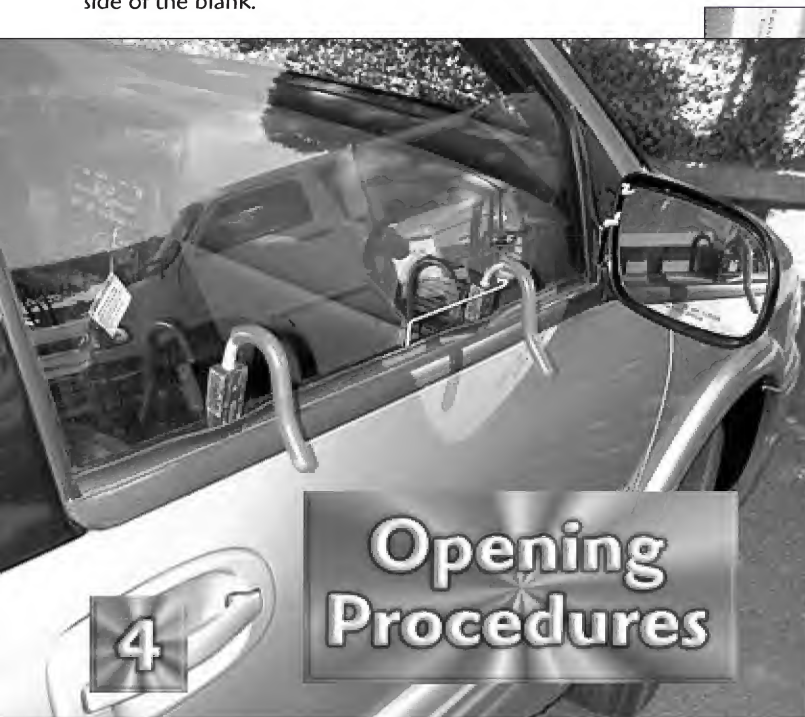
This minivan is one of the first of to have side impact airbags. These airbags are mounted in the outboard section of the front seats.



The tool we used was a Tech-Train #1021.



Use a couple of good wedges and a light to slide the tool down in between the upper and lower horizontal linkage rods. Twist the tool forward to unlock the door. This specially designed tool is needed for this heavily shielded set of linkage rods.



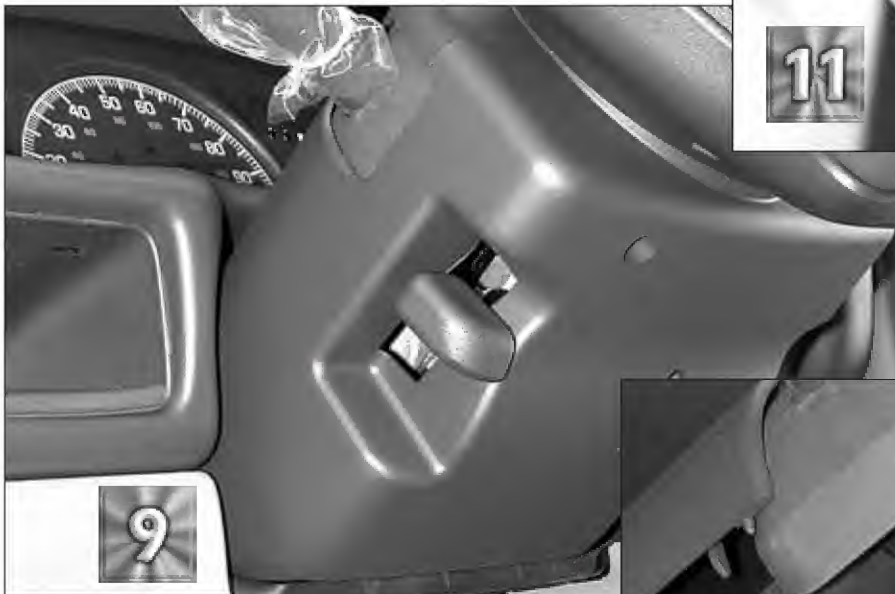
The ignition lock is the CSS column type found on all GM trucks, vans and some cars. This ignition has the "PASSKEY 3" transponder system.



There are 2 Torx bolts to remove on the bottom of the column.



The "PASSKEY 3" transponder module can be seen and is clearly marked.



The tilt lever for the adjustable column can be removed by simply pulling outward on it.



The bottom section of the shroud can now be unsnapped from the upper shroud and removed.



Remove the external Torx bolt on the left side of the column. The Torx bolt is attached to a spacer rod. When you re-attach the Torx bolt you must hold the spacer rod while tightening the Torx bolt. If you do not hold the spacer rod it will over-tighten and crack the upper shroud.



The other Torx bolt to remove is on the right hand side of the column.



There is a large enough opening in the upper shroud to allow it to be removed off the column.



Before removing the cylinder plug you must put the van in DRIVE for automatic transmissions, so the starter will not engage or for standard transmissions do not press in on the clutch. If you hear the starter engage you must stop and see what you are doing wrong. Insert the working key and turn it to the START position and depress the active retainer to release the cylinder plug.

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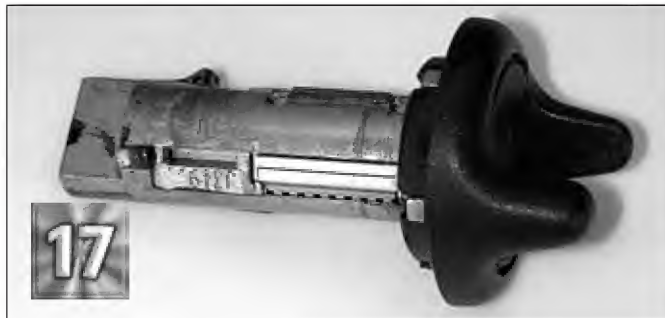


#TIPS - 2

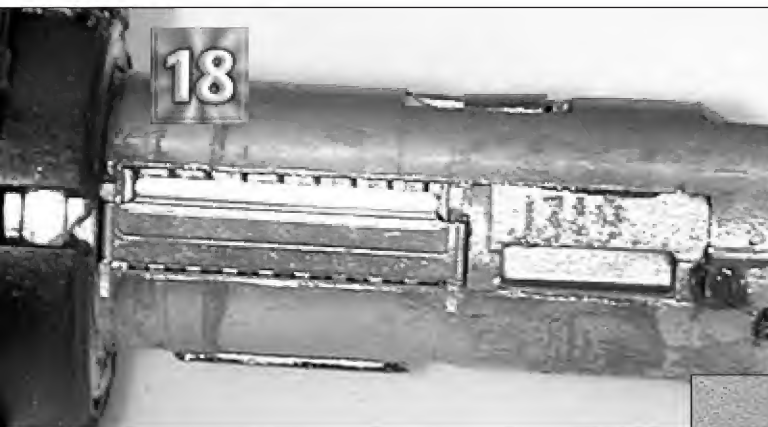
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A look at the cylinder plug removed and the PASSKEY 3 transponder module with the built-in induction coil (antenna ring).



The ignition cylinder plug removed. There is no secondary lock housing like on most other ignitions.



The ignition cylinder plug has a similar retainer cap and similar wafers. The plug has tumblers in positions 1 through 9. On most factory plugs there is a code stamped on it. The code is stamped in way that can make it very hard to read since it is in a dot format like those old dot-matrix printers.



The ignition tumblers are in depths 1 through 4 and are sidebar wafers.

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If you do not have a working key:

- Remove lower and upper shrouds.
- The rubber/plastic ears on the cylinder can easily be removed with a screwdriver or pliers.
- Insert a sidebar depressor like found in the A-1 Security #PS2 kit.
- Rake the tumblers with a pick or use the rocker picks from the A-1 Security #PS2 kit.
- Once you have picked the cylinder turn it just slightly and insert a GM 10-cut keyblank cut all the way down to number 4 depths (otherwise you may break the plastic brittle key buzzer), remove the wire sidebar depressor and rotate the cylinder to the ON position.
- The cylinder must be removed in the START position, but before you do that remember to put the van in DRIVE for automatic transmissions, so the starter will not engage or for standard transmissions do not press in on the clutch. If you hear the starter engage you must stop and see what you are doing wrong.
- Decode the plug or look for the code stamped on the plug.
- You should be able to re-attach the ears to the plug.



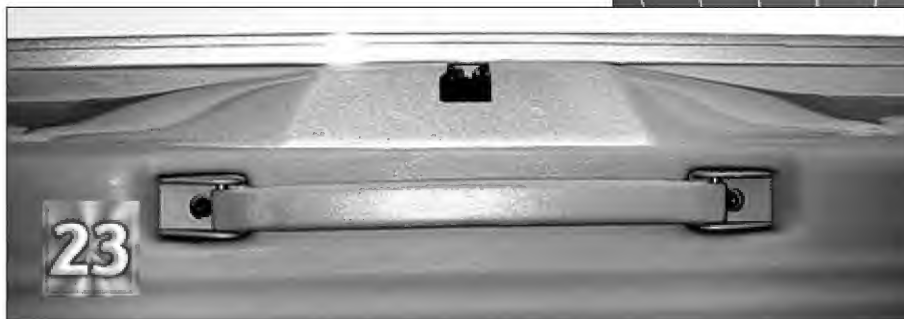
The rear hatch lock is located directly above the license plate.



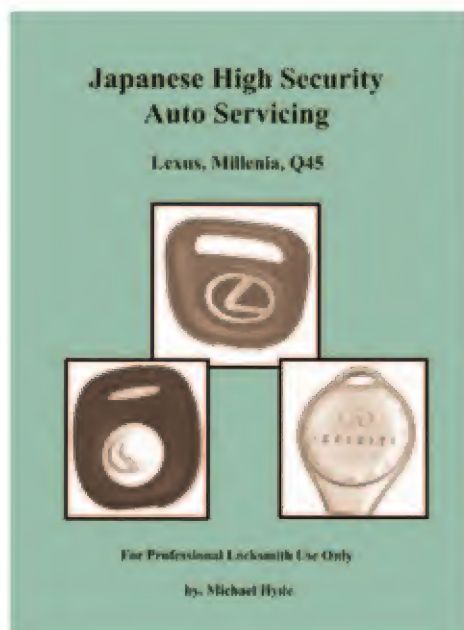
To remove the lock cylinder you will have to remove the entire inside plastic trim panel.



Use caution and gentle pulling when you unsnap the thinnest section of the panel.



Remove the two screws on the hatch pull handle.



Japanese High Security

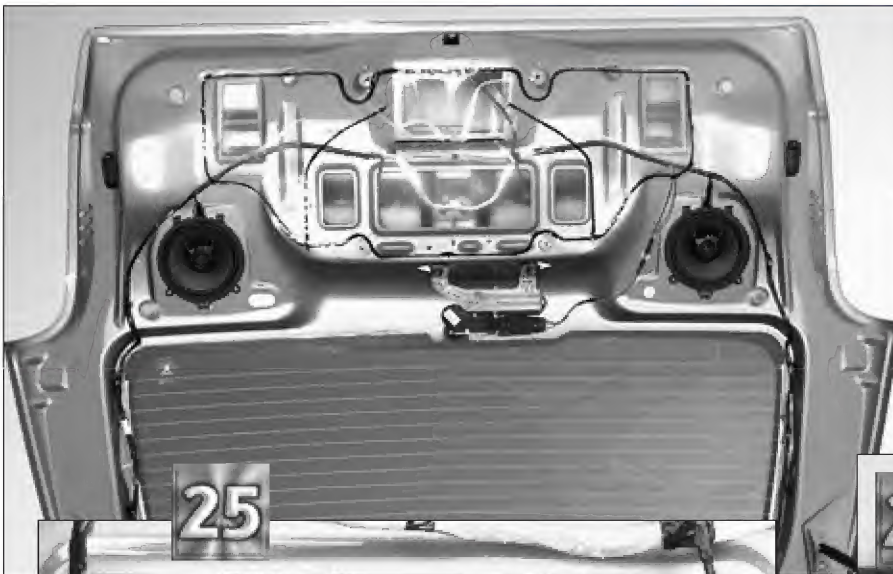
Some of the most profitable cars are also the trickiest to work on.

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#JAP - 1

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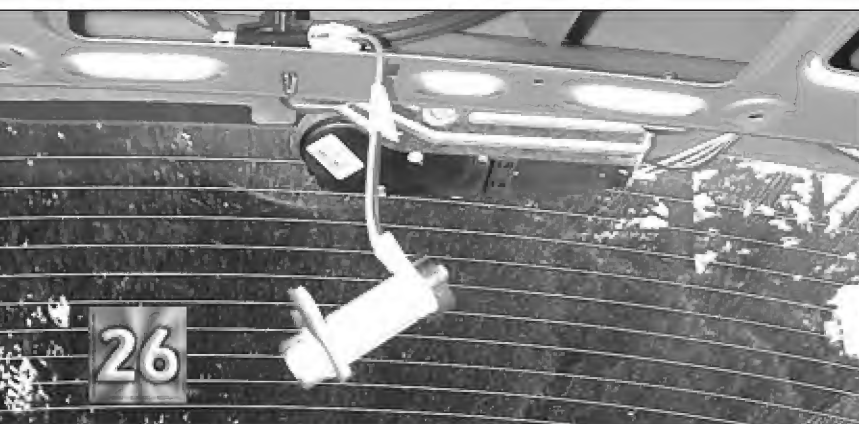
A view of the hatch with panel removed. The lock cylinder is held in place by two 10mm nuts. Remove the nuts and disconnect the linkage rod.



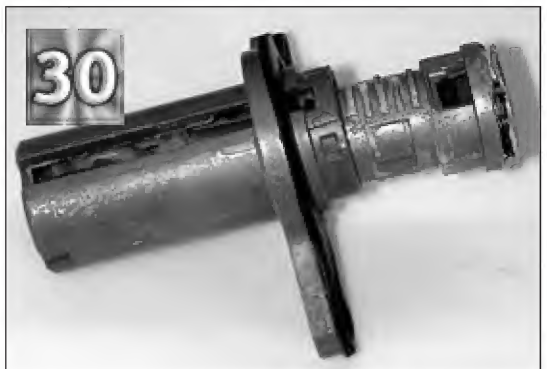
Remove the electrical connector and tailpiece and make sure you mark it so you can put it back on the way you took it off.



The lock uses a re-usable face cap.



Remove the electrical connector that connects to the lock cylinder.



The cylinder is not warded and slides out easily.



A view of the lock cylinder.



The hatch cylinder plug contains 5 tumblers in positions 6 through 10.

Next month we will finish up covering the door and glove box servicing procedures.

TNL

the Great American Dream

Adesco...

by Sara Probasco

The Great American Dream is alive and well in Adesco Safe Company of Paramount, California. From humble beginnings, the business has grown into one of the largest family-owned safe companies on the West Coast and with multi-national outreach.

It all began back in 1948, when Glenn Halls purchased a small company called "Star Safe" in Compton California. Glenn hired his brother, Gene Halls, to help him "grow" the company. Both brothers were mechanically inclined (as Gene puts it, "I was born an S.O.B." - Son of a Blacksmith, that is!), so safe designing came easy to them. Gene went to night school to learn drafting and soon began engineering for the small company.

Things r o c k e d along pretty well for several years, and in the late '60s Glenn built a new building in Paramount, California and moved their operation there. Then, in 1970, they sold the business, which later became Amsec.

Glenn was always a service man at heart, so he eventually bought back the service department from Amsec. As his business grew, Glenn saw the need for a line of inexpensive safes.

"Hey, I can do that," his brother

offered, so - working out of his garage - Gene began manufacturing safes for Glenn's business.

They made their nation-wide debut at ALOA '76 in Anaheim California. At that time, they were calling their business Adesco Enterprises. This was also about the time the brothers joined the two companies, manufacturing the "Adesco Safe" as Star Safe & Alarm, Inc., while continuing to maintain a



1. Glenn Halls and family on ground breaking for the new building in 1964.



2. Product for the debut at ALOA Anaheim, CA 1976.

fully equipped service group as Star Safe & Lock.

Gene's son, Earl Halls, recently shared with me memories of those days.

"When Dad started the business, he built a small room onto our garage so he could have some place to work and be alone. With seven of us living in a small three-bedroom house, he needed some space. I can remember, as a little kid, watching Dad through the sliding glass door while he welded safes together. One morning I woke up and couldn't open my eyes. I had watched the welding arc so long, my eyes got burned and sealed my eyelashes closed."

The youngest in the family, at age seven Earl would go to work with his dad on weekends, where he learned to empty trash in the office and the factory. Other days, he would go to the office after school and put catalogs together on the floor.

"On my ninth birthday, Dad taught me how to drive the forklift. It was probably the best present ever! Next, I learned to empty the heavy factory trash cans with the forklift. (I suspect that was Dad's plan, all along.)

"Later that year, Mom, Dad, and I moved to Atlanta Georgia to open an East Coast plant. You can imagine how exciting this was for a nine-year-old! Dad bought equipment, hired a crew, and we went to work. That year I learned to weld! But my core job was still catalogs, and trash."

Even as a child, there was never much opportunity for Earl to simply stand around and watch. Every summer he built doors, welded safe bodies together and painted safes. His four siblings had similar experiences.

"Everybody paid their dues," Earl said, recalling how they had all grown up in the business. "It was answering phones, sweeping floors, everything. We all started at the bottom."

Earl's oldest brother, David, began working when Glenn and Gene had



3. Adesco World headquarters.



4. Some of today's product offerings.

the first business. In the welding shop, Dave displayed a natural ability to design and build. He took over the manufacturing operations shortly after completing high school and eventually moved to Atlanta to run the entire East Coast operation.

Earl's sisters, Connie and Ellen, worked in the office for a time, but they soon moved on to outside interests.

Brother Steve worked all through high school at the company and at other jobs, focusing on the service end of the business. He is now senior service technician in the company, working mostly from his home in San Diego.

Even vacations were centered around work - like the summer of 1983, when Gene took Earl and Earl's nephew with him to ALOA in Baltimore, Maryland. Gene and Glenn had been manufacturing their own safes since 1974 and had gotten good exposure at ALOA '76, in Anaheim. They had long since moved from Gene's garage to a small building in Paramount for a while and then into the family-owned building, when it was vacated, in 1980. Now, with the



5. Finish machining on Adesco's massive cast iron hinges.

business still young but growing, they were eager to expand further.

Earl and his nephew were both thirteen when this two-month trip began. Their mode of transportation "from sea to shining sea" was a motor home with the front end converted into a sales room full of bolted-down safes. They would pull into each town along the way that had a locksmith, and Earl's father would show every



6. All Adesco safes are hand welded for quality.



7. Assembly of large E commercial safes.



8. Final assembly of floor safes.

locksmith their wares before moving on to the next town.

"We'd spend a day or two in the bigger towns, but we'd hit two or three small towns in a day," Earl recalled, smiling. "Traveling across Nebraska was the first time my nephew and I got to drive a motor home."

They saw a lot of America that summer: national parks and monuments, Fort Ticonderoga, Monticello, Washington, D.C., the Little White House. It was Gene's way of having a family vacation with some

tax write-off.

Years before, Gene's other brother had taken a slightly different approach. Glenn had his own airplane and flew into every little town he could, using slide-shows and movies to train dealers in selling his products. That's the basis on which the company was founded - making sure the dealer came first and knew he was most important - a concept that has remained foremost through all the years since.

In 1993, Adesco concentrated their marketing focus to provide strong support for their distributors. They decided to close their east-coast manufacturing plant in Atlanta and bring the entire operation back to California. That's when Marketing Director Kim Girard put together a unique distributor marketing program. That turned the company from a family-business type operation into the international manufacturing company it is today.

Now they're meeting the challenge of putting forth the "face" of a multi-million-dollar company while maintaining the customer-intimacy of a small operation, and with great success! Adesco offers its customers sales tools, Internet advertising for stocking dealers, and custom product support.

So what is the present focus of this company that has realized the Great American Dream? The same as always: to help each distributor and dealer realize his abilities and make all the profits he can.

"He is really the key in any organization in this industry," Earl says. "We want him to know he matters. That's probably our most important goal."



9. Owners Gene S. and Glenn E. Halls with Vice President Earl Halls.

Now, after some fifty years in the industry, Glenn and Gene Halls have retired to a small valley near Lake Mead in Nevada. Glenn, still chairman of the board, spends most of his time working on his family history, spending time with grandchildren, flying his plane and gyrocopter, and surfing the Net. Gene, president of the company, spends his days learning to farm in the desert, boating, and organizing fifty years of family photographs. Both brothers enjoy four-wheeling and day trips on the quad runners - another dream fulfilled by a couple of great American locksmiths!

A little foot note: In case you wonder, "ADESCO" is an acronym of Halls family first names: "Anna, David, Ellen, Steven, Connie, and Oh...we forgot to add Earl!" "Forgotten" Earl Halls is now Vice President of Operations, in charge of the entire operation!

For more information on Adesco safes contact: Adesco Safe Mfg., Co., 16720 S. Garfield Ave., Paramount, CA 90723; Phone: 800-821-6803; Fax: (562) 408-6427; E-Mail: sasles@adesco.com; Web: www.adesco.com or circle 256 on Rapid Reply. **TRU**

The Lure of the Lock

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#LURE

— Part Two —

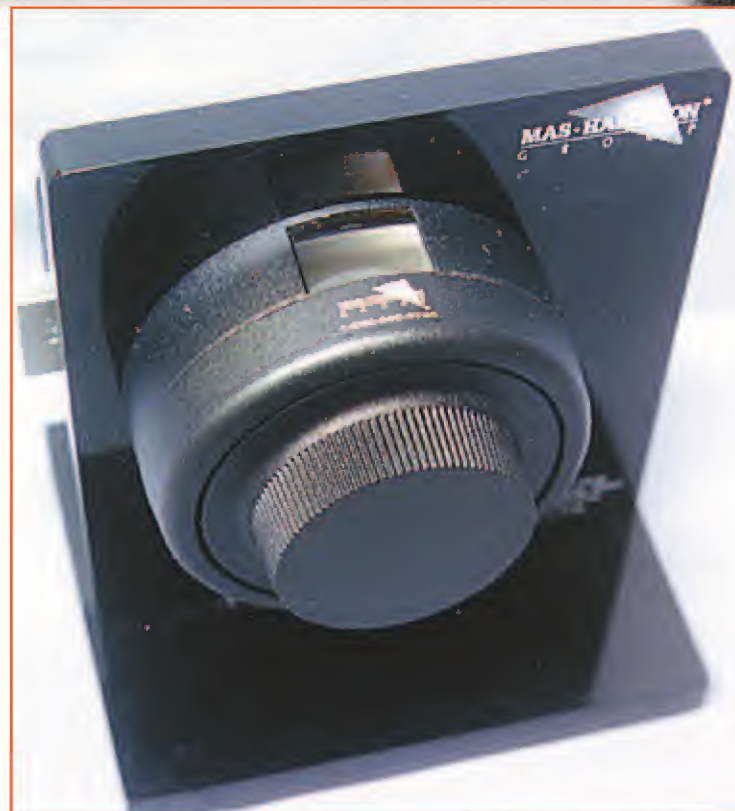
The **NEW** **MAS-HAMILTON** **X-08** / **CEX-08**



by Sal Dulcamaro, CML

Last month, I explained the installation procedure for the Mas-Hamilton X-08/ CEX-08. This month I will explain the operation and programming of the unit. Just as in the installation and assembly procedures, there are also similarities and differences in the programming and operation of the X-08 as compared to the X-07. Both the X-07 and X-08 are electromechanical with a self-contained generator that removes the need for batteries. Although you view the combination in an LCD display, instead of lining up a dial mark to the opening index on the dial ring, much of the operation of the X-07 simulated the feel of dialing a conventional mechanical safe lock. You still dialed the combination by changing directions left-right-left-right. Besides the physical changes in the construction of the lock, the X-08 has operational differences. Many of those changes can be categorized as refinements and improvements. If you are familiar with the X-07, you will probably find the changes to be worthwhile.

In *photograph 1*, you will find a mounted Mas-Hamilton X-08/ CEX-08 lock. It is not just another electronic lock. It uses sophisticated software to detect and thwart attempts at manipulation. It maintains a running record of every successful opening, and (after three wrong attempts) counts the number of wrong combinations attempted and displays the number at the start of the dialing process. In fact, after 15 wrong attempts, the unit will shut down. Earlier, I mentioned that the X-07 was dialed left-right-left-right like a conventional mechanical safe lock. The X-08 is dialed to the right only when dialing the opening combination. Left



1. A mounted Mas-Hamilton X-08/ CEX-08 lock.



2. E1" followed by an arrow pointing to the right.

(counter-clockwise) rotation is generally limited to powering up the unit and a few special functions. To avoid confusion, take note that the following rotation directions will be used interchangeably: right/clockwise/ CW; and left/counter-clockwise/ CCW.

"Powering" the X-08

Before you can start dialing the combination, you must power the lock. The generator is activated by turning the dial to the left (counterclockwise). You will typically need to turn the dial left, four to six turns, in order to generate sufficient power to operate the lock. The lock is considered "powered" when the LCD display shows something on it. With a standard X-08, you will normally see "E1" followed by an arrow pointing to the right, as shown in *photograph 2*. This symbol acts as a prompt and indicates that you should enter the first number of the combination. The right arrow indicates rotation in that direction.

If there is an error condition, the appropriate symbol for the condition will display before anything else. Also, if you have a CEX-08, "CA" will display for a very short period before it changes to "E1". This is not an error condition. "CA" means that covert entry detection is active, and seeing this on the display will differentiate a CEX-08 from an X-08. This feature does not apply to a standard X-08, and similarly, certain error conditions will not be possible. There are some software differences between the X-08 and CEX-08, and I will indicate which features and conditions apply only to the CEX-08, as I explain them elsewhere in this article.

If you continue dialing to the left after the lock is powered, the LCD will display the number of successful openings of that particular unit. It will display as four digits. The first two digits will be preceded by an arrow pointing left, and the last two digits will be followed by an arrow pointing right. During operation or programming, if you see "dL" preceded by a left pointing arrow in the display, you will need to dial left to generate additional power. This could occur during a lengthy programming operation. You should dial left until the "dL" display changes to something else.

Dialing the Combination

After the "E1" prompt, you should dial right to the first number. While the X-07 required changing dialing directions



3. E2 on the display followed by a right pointing arrow.



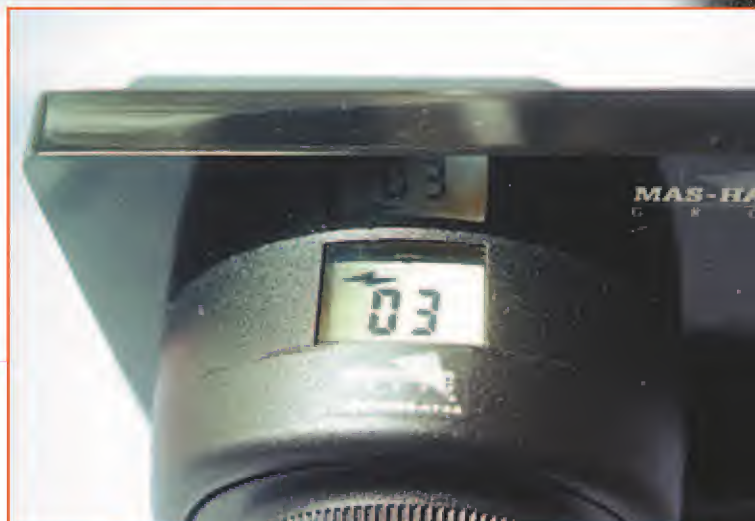
4. You will be prompted for the third number.

(left-right-left-right) like a mechanical safe lock, the X-08 has all numbers of the combination dialed right. With the X-08, after the prompt, you will see either a 00 or 50 on the display before you start entering the first number of the combination. As you turn right, the numbers will count higher with no specific relationship of the numbers passed to the fractional rotation of the dial. This is one of the features designed to resist manipulation.

The factory default combination is: 50-25-50. Before starting to dial the number, after the prompt, the LCD will alternately display 00 or 50. When the number (00 or 50) first displays, if it is the correct entry for the combination, you must dial until the number shows up again. It will not count as a proper entry unless you have dialed to reach it. If a number is on the display and you stop for about a second or two, it will become your entry and the lock will prompt you for the second number. *Photograph 3*, shows "E2" on the display followed by a right pointing arrow. The next number would be entered by dialing right again. After stopping on your second number long enough for the entry to take, you will be prompted for the third number, as shown in *photograph 4*. You would then dial the last number of the combination. If the combination is dialed correctly, "OP" with a right arrow will display, as in *photograph 5*. That symbol indicates "Open right". You would dial right until the bolt retracted.



5. OP with a right arrow will display.



6. The lightning bolt will display plus the number of incorrect attempts.



7. You must use a special change key.



8. A button on the change key extends two metal prongs.



9. Insert the change key into the change key holes.



10. Push inward until the change key is fully seated.

If the combination is wrong, a lightning bolt will show up in the LCD display. If dialed incorrectly three times in a row, the lightning bolt will display plus the number of incorrect attempts, as in *photograph 6*. Following three or more incorrect opening attempts, the number of wrong attempts will display when powering the unit. This is an improvement over the X-07, since there is no need to audit the lock to see if someone was tampering with the lock by trying to guess the combination. The lock effectively volunteers the information, alerting a possible manipulation attempt. After 15 wrong attempts, the lock goes into an error condition (identified on the display as "SA") and won't allow another opening attempt until the error condition is cleared. "SA" means that a surreptitious entry attempt exists.

Operating Modes

Being an electronic lock, the X-08 can operate in one of three possible modes: Single Combination Mode, Dual Combination Mode and Supervisory/Subordinate (Super/Sup) Mode. In single combination mode, the lock will open when one three-number combination is correctly dialed. Dual combination mode requires that two separate three-number combinations be dialed. It doesn't really matter which of the two combinations is dialed first, but the second combination dialed must start within ten seconds of completing the first combination. If the lock powers down before the second combination is entered, both combinations will have to be re-entered. In super/sub mode, two separate combinations are needed to open the lock. Both combinations are not interchangeable as in dual mode. The supervisory combination controls access of the subordinate combination.

Programming: Setting Operating Mode and Combination Changing

You must use a special change key, shown in *photograph 7*, to set the operating mode or combination. A button on the change key extends two metal prongs, as in *photograph 8*, which plug into the back of the lock case for programming.

If the container is locked, you must first dial the current combination and unlock it. With the container opened, gain access to the change key holes on the back of the lock. Next, insert the change key into the change key holes as in *photograph 9*. Hold your thumb on the change key retractor to prevent the two pins of the change key from retracting back into the handle. Push inward until the change key is fully seated as in *photograph 10*. You must then release the container locking bolts to allow the bolt of the X-08 lock to be extended. Next, dial left until the change key symbol shows up on the upper right hand portion of the LCD display along with "E1" on the main portion of the display. Note that the lock will not unlock if the change key symbol is displayed on the LCD.

Dial the current combination or combinations, following the prompts, as if dialing to open the lock. If in Super/Sub mode, the supervisor's combination must be entered first. Instead of unlocking, the symbol "SL" (meaning SeLect mode) will be on the LCD display. You should dial right to choose the mode of operation. The numbered choices are as follows: 1- for Single Combination Mode, 2- for Dual Combination Mode, and 3- for Supervisory/Subordinate Mode. Stop on the number for your chosen selection, and wait a few seconds for it to register. Then "dL" will appear, indicating that you should dial left to generate additional power during the programming operation.

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#SO - 1, SO - 2, SO - 3, SO - 4, SO - 5

Single Combination Mode

The mode you select will determine the procedure for changing the combination. You must be ready to set the combination after dialing left, mentioned above, when the lock prompts you to enter the new combination. If it powers down, you must restart the programming process.

In Single Combination Mode, after the “dL” prompt and you dial left to generate more power, you should see the symbol “EC” (which means Enter Combination) on the display. Dial right to enter the newly chosen combination, as if you were dialing it to open the lock. First you will see the “E1” prompt. Dial right to the first number of your newly chosen combination. Wait about two seconds for the entry to register. Next “E2” will appear. Dial right to the second chosen number, then stop until you see the “E3” prompt. Finally, dial right to the third number you chose. If it takes, the combination you entered will display two digits at a time. Then it will display a second time, followed by the prompt “PO” (which means Pull Out).

If a combination other than the one you intended displays, you can pull out the change key and the lock will let you reset the combination. You must pull out the change key while the combination is still flashing, to pick up the procedure at that point. When “EC” reappears, you would reinsert the change key and dial the originally intended combination.

When the combination displays twice, as you intended, follow the “PO” prompt and pull out the change key. The change key symbol will disappear from the display and be replaced by “dL”. Dial left to generate additional power, and the prompt “CC” (Confirm Combination) will appear. Dial right, following the prompts, to enter the new combination to confirm the combination. “OP” will display, and the new combination will be set.

Dual Combination or Super/Sub Mode

If you chose Dual Combination or Super/Sub Mode, your programming process will be nearly identical. The main difference is that in Super/Sub Mode, the supervisor’s combination must be entered first. In Dual mode, either combination can be entered first.

Go back to the paragraphs preceding the topic “Single Combination Mode”, and pick up the programming process from there. I already explained inserting the change key, dialing the current combination and selecting the mode. After dialing left to generate additional power, continue here instead of following the process for Single Combination Mode.

When dialing left this time, instead of seeing “EC” (Enter Combination), you should see the symbol “C1” (meaning enter Combination 1). Dial right and follow the prompts to enter the first new combination. If Super/Sub mode, it must be the supervisor’s combination. If in Dual Mode, either of the two new combinations can be entered. After the first new combination is entered, the new combination will flash twice (two digits at a time), followed by “dL”. If an unintended combination displays, you can follow a similar procedure to that mentioned in Single Mode. If it is the intended combination, dial left until you see “C2” (enter Combination 2) on the display. Dial right, following the prompts, and enter the second new combination. The second combination should also flash twice. The same process as above applies if the second number display incorrectly, to reset the combination. If it is

correct, pull out the change key when the “PO” prompt displays. The change key symbol will be replaced by “dL”. Dial left until you see “CC” (Confirm Combination). Dial right and follow the prompts to enter the two new combinations. In Super/Sub Mode, the supervisor’s combination must be entered first. In Dual Mode, either combination can be dialed first. When “OP” (OPen right) displays, the new combinations have been set.

I’m not going to explain every small variation and detail, since you will need to be certified on the X-08 to be fully knowledgeable on the installation, operation and programming of the lock. I will briefly explain the error conditions.

Error Conditions: X-08 Security Features

The various error conditions are part of the security features built into the software of the lock. Earlier I mentioned that incorrect opening attempts are recorded by the lock, after three consecutive wrong combinations. If the proper user of the container started dialing left to power the lock, he or she would know if someone was trying to guess or manipulate the combination if the display showed a lightning bolt and a number between 3 and 15. As long as 15 wrong attempts have not been made, the unit should not shut down.

Finding who is tampering with the lock might be difficult, but the fix for the lock is relatively simple. Correctly dialing the combination will reset the unit, and it will not display the number of incorrect attempts again until three more consecutive wrong combinations are entered. After 15 wrong attempts, you cannot just dial the correct combination to reset the unit. You will need to know the “reset combination” in order to clear the system. Knowing the serial number can help you recover the reset combination, if it is not known. The resetting process varies slightly depending on the operating mode.

CEX-08 Features

I mentioned at the beginning of the article that the CEX-08 can be distinguished from the standard X-08 when powering the lock. Where the X-08 will just prompt “E1”, the CEX-08 will precede that prompt with the symbol “CA”. “CA” means that Covert entry detection is Active. If in an error condition, something else may display. The software in the standard X-08 will detect a Surreptitious entry Attempt (SA), as will the CEX-08. That is triggered by 15 consecutive wrong combinations.

Only the CEX-08 is capable of having the “CE” error condition, which means Covert Entry condition exists. It can be triggered by a number of things including tampering with the bolt or back cover. Another error condition specific to the CEX-08 is “SC”, which indicates a combination of “CE” and “SA” error conditions. The reset combination is needed to reset the unit with any of the three (SA, CE, SC) error conditions.

Training classes on the X-08/ CEX-08 are being offered throughout the country. If you would like to get more information about the classes or the Mas-Hamilton family of electronic locks, contact: Mas-Hamilton Group, 805-D Newtown Circle, Lexington, KY 40511-1240. Phone: 800/950-4744 or 606/253-4744. FAX: 606/253-4748. Circle 258 on Rapid Reply.



The National Locksmith

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AWARDS

2000

There's a lot of hype in our industry regarding who's on top and what company has the best product or tool to use in a specific application. But, no matter what is seen at a trade show, or what is read in a magazine, the bottom line most of the time is personal preference.

The best way to measure personal preference is to ask our readers what their favorites are, and the best way to get a handle on that is to look at what items in the pages of The National Locksmith have generated the most interest over the year.

On the next several pages we show you what products the locksmith prefers. Among all of the advertisements and articles in The National Locksmith through 1999, the following ten items are the ones which generated the most leads through our reader response system.

Therefore, these ten products represent the best of the best in terms of locksmith preference in the past year.



BWD Automotive Corp.

Becoming the best you can be means offering the best at the best price. Lockcraft™ automotive locks, keys and service kits by BWD allow you to do just that. And now, BWD's Premium Pack lock kits offer you convenience as well as good parts at a good price. So turn to BWD's Lockcraft brand parts; offering high quality aftermarket automotive parts at reasonable prices. BWD Automotive Corp. is a Dana Corporation company.

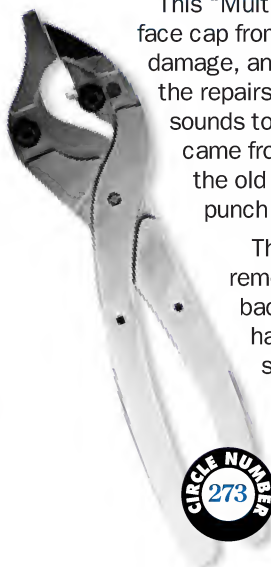
The GardLok 300 by Saflok of Costa Mesa, CA. is an electronic access control locking system. It measures a mere 5.35" H x 1.70" W x 1.25" D. Its original design accommodation is for 1.75" aluminum frame doors utilizing the Adams Rite MS1850 style swing bolt. This access control unit may not offer the broad versatility as the cylinder lock of yesteryear, but it does introduce a new approach towards the future of a keyless society. Although there is already been a keyless mechanical lock available, it does not offer the flexibility of multiple users.

GardLok 300



Gator Tool

This "Multi-purpose Face Cap Tool" will remove a face cap from a lock housing with very minimal damage, and the same face cap can be reused after the repairs have been made to the lock. This sounds too good to be true, but it's not. The tool came from many years of doing face cap removal the old hard way with a screwdriver, pliers, punch and a hammer.



The first operation of the tool is to easily remove the original face cap in good condition so it can be replaced back on the lock. This is accomplished with a specially designed hardened tip and saddle. The second operation is reinstalling the same face cap back onto the lock housing. This tool is fully adjustable to accommodate most any size of face caps from the very thin and small to the larger, older models.

The third operation of this tool comes from not being able to stake spring covers on GM lock cylinders. This tool eliminates the hassle and easily pushes the spring cover into place then, with slight adjustments, staking the cap into place.



CIRCLE NUMBER
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MBA

SoftDrill is a new and extraordinary tool designed to open the most popular mechanical combination locks quickly and easily. No longer will it be necessary to hard drill a safe when the combination is lost. No longer will you have to attend special classes and schools in the art of manipulation. SoftDrill can open the most popular mechanical combination locks in 30 minutes or less.

Using sophisticated electronics, powerful software and a conventional laptop computer, the SoftDrill can automate the process for you without damaging and destroying the integrity of your safe. Unlike autodials that automatically dial all possible combinations until the lock is opened. SoftDrill uses a powerful electronic transducer microphone to listen to the wheels, gates, fence and lever of a combination lock.



CIRCLE NUMBER
275

Schwenk Tool Company Installation Template

The "Timesaver" from Schwenk Tool Co. is a unique installation jig for commercial cylindrical locksets. The template, which has a lifetime warranty and is ready to use for any backset or door thickness, has hardened steel drill guides to pinpoint drill points for Schlage, PDQ, Corbin Russwin, Arrow, Unican and Trilogy.

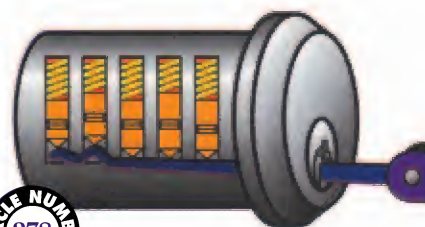
Available in red, blue or black anodized finishes, the template features rubber feet to prevent door finish scratching and a bubble level to assure accuracy. No setup is required. In addition to single application units, the Timesaver is also available in 2-in-1 and 3-in-1 applications.



Sieveking New Key-Scope

Sieveking Products Co. has added the "Key-Scope" to its growing line of unique locksmith tools. This new wafer lock reading tool incorporates features not found in any other scope. Key-Scope has a new variable intensity High Output light. The longer wafer depressor allows the locksmith to read wafers in deeper keyways. There are two viewing lenses on Key-Scope. One lens is short focus, for standard keyways, the other is long focus for deeper keyways and safe work. Used together, the Key-Scope lenses ADD, to give a higher magnification, ideal for reading those hard to see impression marks. A padded Hard-Shell case is included, to protect this fine instrument.

CIRCLE NUMBER
276



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278

HPC, Inc.

HPC's Learning Center reference book collection is a series of technical manuals designed with the security professional in mind. All manuals are written clearly and feature meticulously detailed exploded view drawings. HPC's manuals assure that the reader will come away with a much greater understanding of the job at hand. The series consists of Basic Picking (available in English, French, Japanese and Spanish), Basic Tubular Picking, 10-Wafer Ford service, Basic Impressioning, Basic Master Keying, Advanced Tubular Picking, Basic Electricity for Locksmiths and PASS/V.A.T.S.

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Steck BigEasy Lockout Tool Kit

The BigEasy from Steck is the complete lockout tool kit for all cars and light trucks. It eliminates the danger of airbag activation and disconnected linkages because none of the tools enter the door cavity. The BigEasy is always visible as the technician actuates the interior buttons, slides or handles so no extensive training is required. The SureGrip Knob Lifter is used on vertical lock buttons.



CIRCLE NUMBER
277



Truecraft Tools Creates Improved Catalog

Truecraft Tools has recently updated their current professional hand tools catalog to include more than 250 new products. Each product category is organized into color-coded sections for ease of use. Furthermore, to distinguish sizes, SAE and Metric charts are color-coded. The new Truecraft catalog features both an item number index and an easy to use product type index.

The catalog includes additional information never before included so that the user needs to reference only one book for all their hand tool needs. The catalog includes dimension specifications, weights, and merchandising card sizes for all 2,000 items.



WEDGECO Extractions Made Easy

WEDGECO's new #1400 Key Extractor Kit introduced earlier this year has a red handle wafer spreader and replaces the #1300 Kit with the blue handle pliers. The new red handle #1400 pliers' nose is 1/2-inch longer, thinner and made of stainless steel. The kit includes a 5-inch stainless steel forceps with a curved tip, for easier access to the lock.

The newest version of the #1400 Kit includes three of the new extra long "gold" spiral extractors. They have a 2-1/4-inch long spiral wire. They are made to go all the way to the back of the ignition locks on the 1998 and newer Toyotas, Geos, Hondas, Volkswagens, Nissans and many more for easy 5-minute broken key removal. **TNL**

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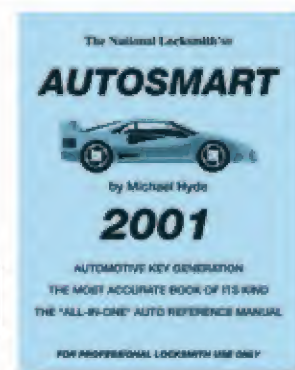
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by
**Richard
Allen
Dickey**



The **medeco** **SiteLine**

SINGLE DOOR CONTROLLER

Part 3

In part one of this article we went over all of the nice features of the system. Last month, in part two, we went over how to install the software into your computer and the steps involved to program the SiteLine single door controller. This month we will go over the installation of the SiteLine system. Let's get started!

Installing the SiteLine single door controller is a straightforward process. There are four steps involved with this installation. We need to install the reader, the controller, the power supply and the locking device. In this case we will be using the Medeco PM-B01201 power supply and the Maglock® 1200 magnetic lock for the locking device.

Installing the Controller

The first thing we need to do is find a nice place to put the SiteLine single door controller. It obviously needs to be on the secure side of the door and you also need to consider a location for power. In this case, the warehouse door is located about three feet from an AC power receptacle. I am going to take advantage of this and locate the door controller on the inside wall about two feet from the door.

The door controller is designed to fit in a standard double-gang electrical box. We can use either a surface mount or a flush mount box. Since a flush mount installation will look nicer, we will use one of my favorite double gang

1. Typical double gang box.



2. Locking tab for box.





**3. Optional
surface
mount box
for reader.**

**4. Inserting plastic
plug in exterior wall.**



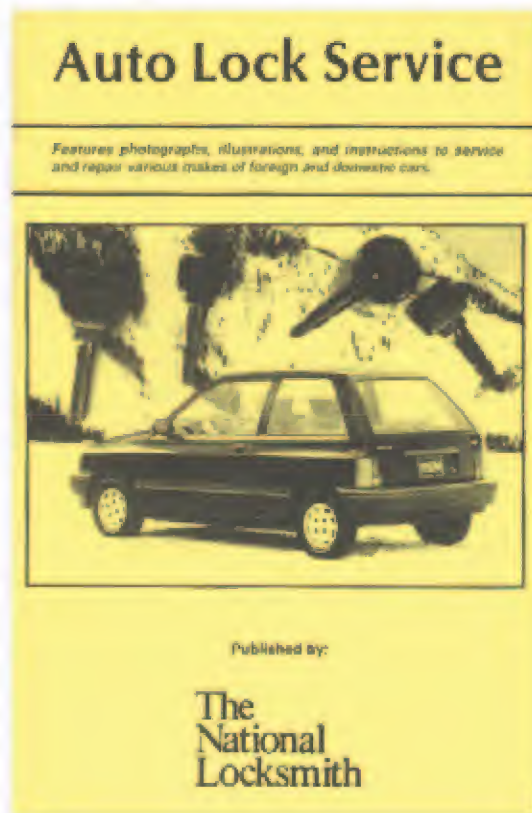
boxes. This box is designed to make installation easy when you are dealing with a finished wall. (See *photograph 1.*)

The idea is to cut out just enough sheet rock to slide the box into the wall. Two locking tabs that are engaged with a screwdriver secure the box to the wall from the inside. (See *photograph 2.*) The tabs can be loosened to remove the box to make adding extra wires easier. After a location is created for the controller, the reader and associated wiring should be installed.

The SiteLine reader should be located in a convenient location next to the outside of the door. For the reader installation, a standard single-gang electrical box will work

just fine. There is also an optional surface mount box that is 1&3/4" by 4&1/4". (See *photograph 3.*) Because of the irregular surface on the outside of the warehouse, my customer wanted the surface mount on the outside instead of a flush mount.

To start with I drilled a 1/2" hole through the metal wall to allow for wire access. To keep water from entering the wall through the hole I just made, I plugged the hole with a plastic plug and punched a small hole in the center for the reader wire to go through. (See *photograph 4.*) The plastic will reform around the wire and make a very good seal. To install the surface mount box, I used four sheet metal screws.



#ALS - 1

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5. Fishing the reader wire from outside to inside.



6. Large and small connectors for reader.

It is a simple process to fish the wire from the double gang box that the door controller will use to the reader mounting location. I prefer to use a stiff wire to find my way between the two holes. Once the fish is inserted, the cable can be taped to the end of the wire and pulled through. (See *photograph 5.*) The cable can be ordered with connectors already installed. (See *photograph 6.*) These connectors just slide over the pins on the reader.

Reader Installation

The reader is supplied with two ground wires, the green ones. (See *photograph 7.*) The reader must be grounded to

prevent ESD (electrostatic discharge) damage. For this purpose, the metal exterior wall will make a very good ground. I simply attach the ground wire to the metal wall by using one of the mounting screws.

Attach the two connectors to the reader. The black wire on the smaller connector and the white wire on the larger connector should be placed so they are facing each other.

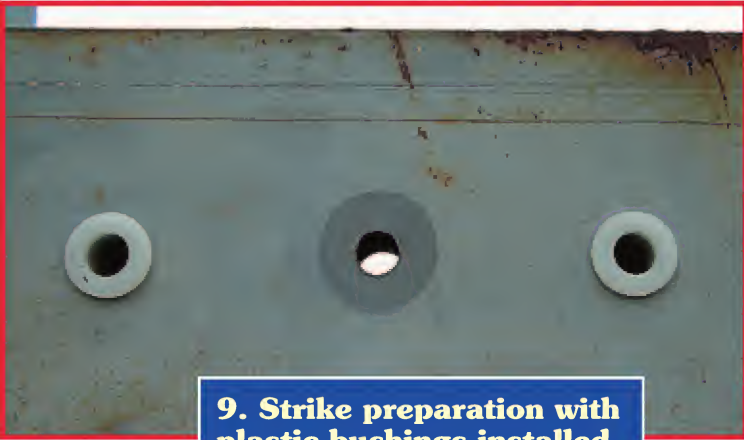
The only thing left here is to secure the reader to the surface mounted box using the special tamper proof screws provided. (See *photograph 8.*) If the reader is removed from the wall by vandals, there is nothing they can do to activate the controller from the outside. They can break it, but they still can't get in.

7. Green ground wires to prevent ESD damage.



8. Security screws for reader.





9. Strike preparation with plastic bushings installed.

Magnetic Lock Installation

To keep things rolling right along, let's get into the magnetic lock installation. The Maglock (magnetic lock) installation consists of two parts. The magnet that is mounted on the doorframe and the strike that is mounted on the door. The two templates provided will allow for precise location of the strike and magnet.

The first step is to mount the strike. With the door shut, the strike should be mounted on the inside, 1/8" below the doorframe and on the same side as the lockset. The reason for the 1/8" drop is to prevent the possibility of the strike rubbing on the frame. To find the proper position for the strike from the edge of the doorframe, measure the width of the magnet and divide by two. In this case the magnet is 8", so half of that is 4". Add 1" to the 4" and this will be the center of the strike from the edge of the doorframe when the door is closed. Remember we are measuring from the edge of the doorframe, not the edge of the door.

Three holes need to be drilled to mount the strike. Using a 3/8" drill, the center hole goes all the way through the door. To finish things, switch to a 1/2" drill and enlarge the outside part of the 3/8" hole. This allows the sexbolt to fit properly. Jumping back to the inside of the door, drill the other two holes with the 1/2" drill. Do not drill all the way

11. Sexbolt on outside of door used to secure strike.



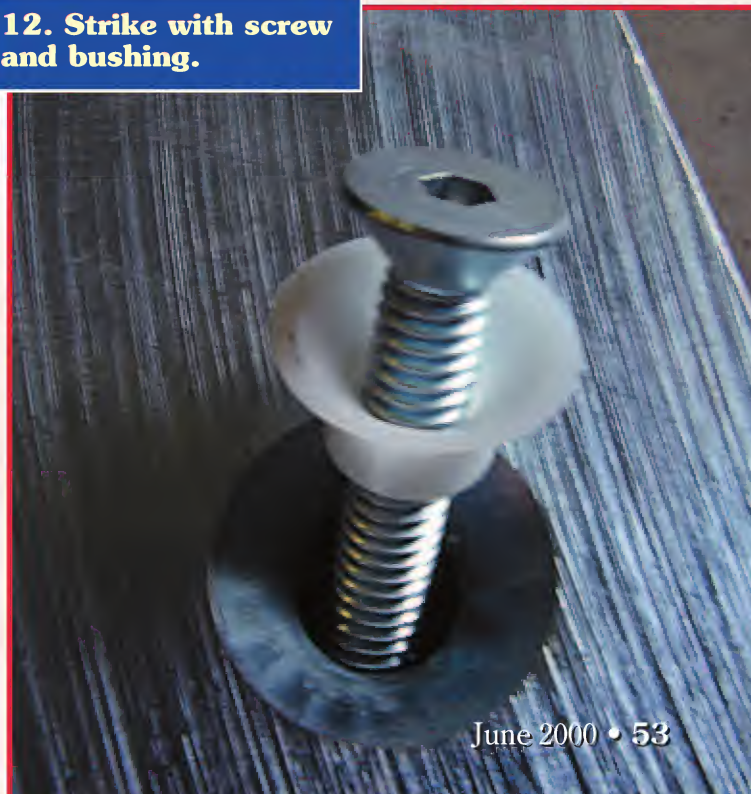
10. Roll pin driven into place on backside of strike.

photograph 9.) The bushings are used to center the two guide pins located on the backside of the strike. What guide pins you ask? The ones I am about to drive into place.

The roll pins are 1/4" by 1" long. The strike is held in place by one big bolt. The pins will keep the strike from spinning. (*See photograph 10.*) You might wonder why they use only one big bolt instead of two or three bolts. Well, the strike needs to contact the surface of the magnet perfectly flush for 100% holding power. The only way to ensure perfect contact is if the strike is allowed to float in position. If the strike was bolted to the door in several places, it might not be perfectly flush with the magnet, resulting in a loss of holding power.

To mount the strike, insert the sexbolt from the outside of the door, but do not drive the sexbolt into place. (*See photograph 11.*) Take the large flat head screw, add the cone shaped bushing and slide it through the strike. (*See photograph 12.*) Now slide on two rubber washers and slide

12. Strike with screw and bushing.





13. Strike with rubber washers added on backside.

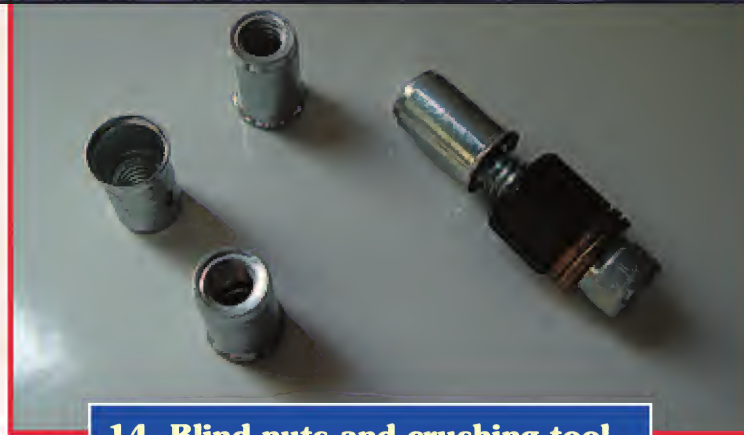
flathead screw is started into the sexbolt, the sexbolt can be driven flush with the door. Continue to tighten the screw but do not over tighten. Remember the strike must be able to move just a little to allow perfect alignment with the magnet.

The magnet is mounted using four machine screws or wood screws depending on the frame type. In this case we have a metal frame and will be using the 1/4" machine screws provided. To give the machine screws something to latch onto, four blind nuts are provided. (See photograph 14.) These things are really neat and when installed properly are very strong.

Align the template to the proper position on the doorframe and mark all five holes to be drilled. Four 3/8" holes are for the blind nuts and one 1/2" hole is for the wire to pass from the magnet into the doorframe.

The four blind nuts are designed to be inserted into a 3/8" hole and then crushed to lock them into place. A small tool is provided just for this purpose. Photograph 15, shows the actual crushing process.

In this installation there was a gap around the frame just large enough to hide the wires from the magnet. By drilling



14. Blind nuts and crushing tool.

a small hole just above the doorframe, the wire is easily worked through the frame and out through the small hole. (See photograph 16.) It can then be placed around the doorframe in the space between the doorframe and the sheet rock. Drilling an angled hole from the edge of the doorframe through the stud will allow access into the wall. Now it is easy to fish the wire the rest of the way to the double gang box for the door controller.

When mounting the magnet, start all four screws before you tighten any of them. They should be tightened, but do not over tighten. Don't forget to use the brass washers provided. They will keep the screws from biting into the softer interior of the magnet.

A little Locktite™ is a good idea any time you don't want something to work loose, so we will use a little here. The final step for the magnet is to put the plastic plugs in the screw holes. (See photograph 17.) They make the installation look a little nicer.

Power Supply and Battery Backup

The power supply with battery backup is very basic and requires no special tools. The power supply and battery are in an enclosure that measures 8" tall by 6" wide by 3" deep. This enclosure is designed for surface mounting. There is a hole punched in the rear of the box that will allow wires to enter. By mounting the power supply above the door controller, the power wires can be easily fished between the power supply and door controller box. (See photograph 18.)

The power supply is powered by a small transformer that is plugged into the wall. (See photograph 19.) There is a small knockout on the side of the power supply cover that allows the wire from the transformer to enter. This is a 14-

15. Installing a blind nut.



16. Running wire from magnet to door controller.

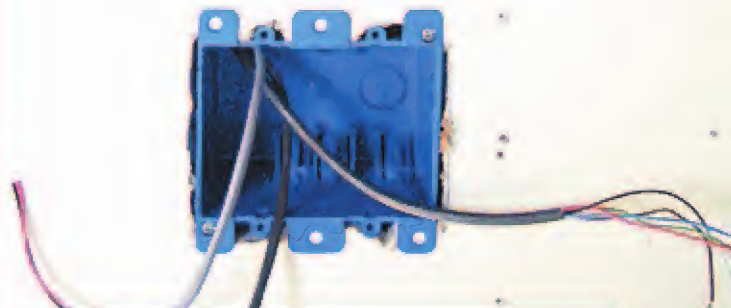
17. Magnet with one of four hole plugs installed.

volt AC power connection, so polarity makes no difference. The polarity of the power for the magnet and door controller does make a difference. Remember, they require a DC power connection.

As you can see in *photograph 20*, there are only five screw down terminals on the power supply board. Screws #1 and #2 are for the AC power connection that comes from the small transformer seen in *photograph 19*. Screws #3 and #4 are for the output connection. This will be the 12-volts DC that goes to the door controller. Screw #5 is for an emergency release. By connection a remote relay between screws #4 and #5, the DC output from the power supply can be remotely shut off.

After making the wiring connections for the power supply, do not connect the battery or plug the transformer into the wall. We don't want power to the door controller while we are making all of the wiring connections.

The wiring connections for the door controller are easy to



18. Power supply/battery backup mounted above door controller.



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#TNL - CD1



19. Transformer used with power supply.



20. Power supply has 5 screw terminals.

do. *Photograph 21*, shows the six wires connected to their proper terminals. The screws used to hold the wires are very small. You will need a very small screwdriver to tighten them. The black wire on the left is on terminal 1 and the blue wire on the right is connected to terminal #6. With that information, you can guess the rest.

Photograph 22, shows two important connections. The first connection that needs to be pointed out is the orange wire. You don't have to use orange, but it was handy so orange it is. This wire is between terminals #5 and #7. If you do not use a door contact, this jumper must be installed. If not, the green light stays on forever because the controller thinks the door is still open.

The red and black wires are for power. If you remember all the way back to part one, I pointed out a power connection on the door controller that was for 12 Volts AC. That would work just fine for most installations, but this is a special one. A magnet has to have power all the time or it stops working. This is the main reason for the big power supply and the battery backup.

To operate the door controller during a power failure, we must have a battery backup. The bottom line is, if the door controller and Maglock are to work all the time, they have a battery backup. If a battery backup is used, it will be

connected just like you see it in *photograph 22*. Screw terminal #8 is positive and screw terminal #7 is negative or ground.

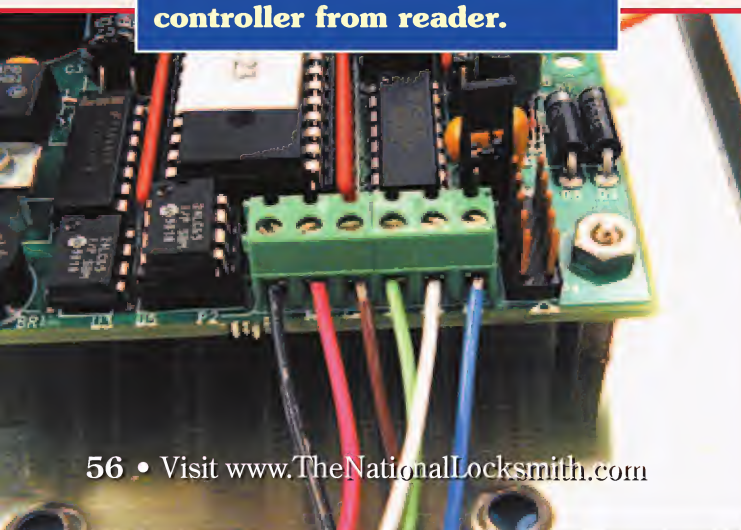
We have done everything but connect the Maglock. *Photograph 23*, shows how we will make the wiring connections. As you can see, we need to add a relay and a diode. The coil (the part of the relay that controls the on and off) is connected to screw terminals #1 and #8. Number 8 is the power and #1 is a switched ground. The switched ground acts as a return path for the DC current flow.

We will connect the diode (a 1N4004 diode) between screw terminals #1 and #8. This is just a standard diode that is available at Radio Shack. Don't worry, there is one supplied with the door controller. The anode or positive side of the diode should be connected to screw terminal #1.

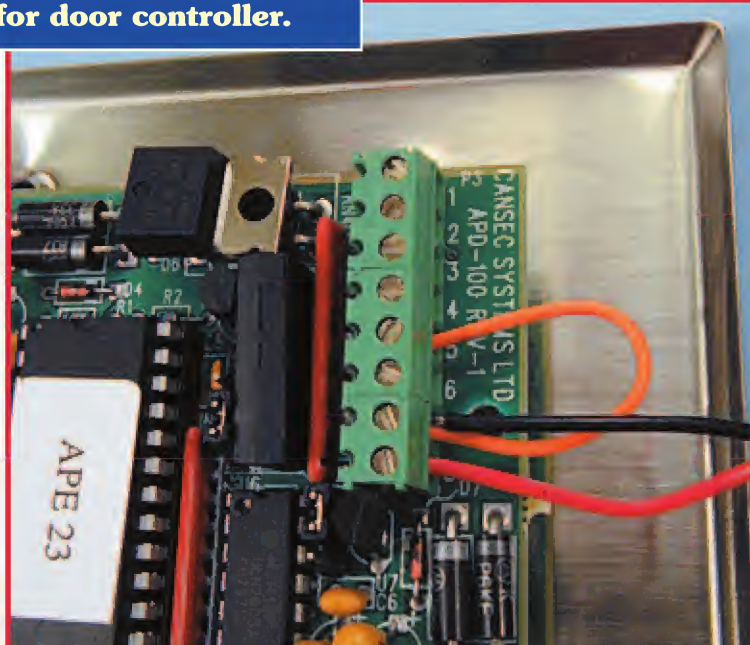
We need to run one more wire from screw terminal #8 to the common connection on the relay. Next take the red wire from the magnet and connect it to the normally closed (N/C) connection on the relay. The final step is to connect the black wire from the magnet to screw terminal #7 on the door controller. This will complete the circuit.

When the door controller is powered up, the magnet is

21. Wires connected to door controller from reader.



22. Power connection for door controller.

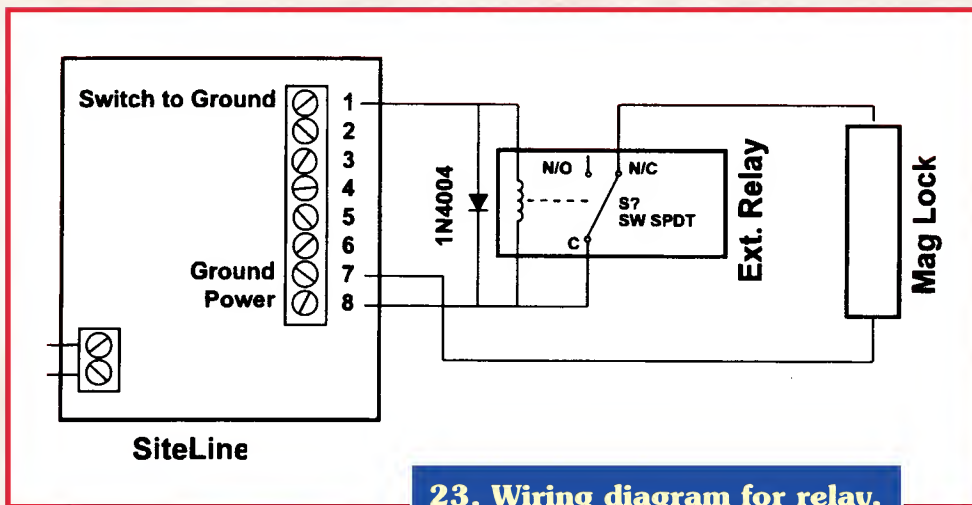


activated because of the power connection from screw terminal #8, through the common and N/C connections on the relay, through the magnet and back to ground at screw terminal #7. When the door controller is accessed with a valid key, current will flow from screw terminal #8 through the coil in the relay and back to screw terminal #1. This current flow will activate the relay, which in turn will break the connection between the common connection and the N/C connection in the relay. Breaking this connection will turn off the magnet. No more magnet, no more locked door.

To power the system up, we just need to slide the 12-Volt battery into place and connect the battery leads. (See *photograph 24.*) Be sure to look at the polarity of the connection before you slide the connectors onto the battery. Now replace the cover to the power supply and plug the transformer into the wall.

The transformer will supply power to the power supply, which will change it from AC to DC. The power supply will charge the battery and supply power to the door controller and magnet. It may sound like a lot, but it really is simple.

When the door controller is powered up for the first time, the LED will be flashing red and green. Before you are able to use the door controller, it must be initialized. The initialization takes two steps. You will need the red and blue keys. The red key will initialize the controller and the blue key will transfer the user information to the controller. The



23. Wiring diagram for relay.

LED will continue to flash until both of these steps have been completed.

First insert the red key into the reader. The reader will chirp for a second or two while the data is transferred to the door controller. Next insert the blue key and the reader will chirp again while its data is transferred to the door controller. After the data has been transferred from the red and blue keys, the led will turn green. Remove the blue key and the led will turn red. For detailed instructions, look in part two of this series.

The last thing I want to show you is the durability of the keys or credentials, as they are called by Medeco. Back in part 1, I mentioned that I would put one of these keys in a



24. Battery installation.

Guide to Motorcycles



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#MOT - 2



25. Key in water.

glass of water for a while just to see if it would still work. In *photograph 25*, we have a key under water. I wanted to simulate dropping the key in a puddle of water or getting caught in a real downpour. After soaking for several minutes, I inserted the key into the reader while it was still dripping wet. (See *photograph 26*.) As you can see, the Medeco



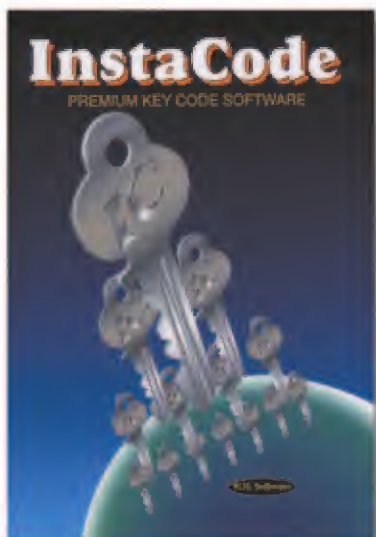
26. Reader giving us the green light.

SiteLine Electronic Access Control System gave us a green light.

For more information about the SiteLine system, visit the Medeco web site at "www.medeco.com" or write to them at Medeco High Security Locks, 3625 Allegheny Drive, P.O. Box 3075, Salem Virginia, 24153-0330. For technical support on this product, call 1-800-675-7558. Circle #255 on the Rapid Reply Card.

TNL

InstaCode

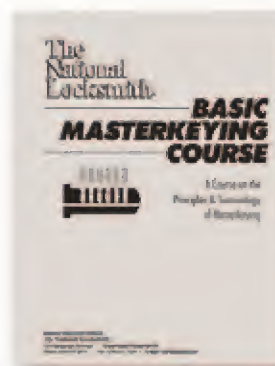


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#IC - 2001

Basic Masterkeying Course



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#MK - 1

Sargent & Greenleaf Comptronic 6126

by Gary Kepler

Today, businesses need to turn on a dime, be nimble, quick and flexible, and Sargent & Greenleaf understands that. By listening to the needs of its customers, S&G has developed a new safe access management system to ensure maximum security and flexibility. The new Comptronic 6126 allows businesses to manage multiple shifts and accommodate customized access options simply and quickly. (See photograph 1.)

A user key utilizing a Dallas chip contains vital access information and transfers an audit trail on each user. (See photograph 2.)

The Comptronic® 6126 is a product designed especially for banks or businesses dealing with larger volumes of employees covering multiple shifts. It offers a hierarchy of security levels and operations, as well as audit trail verification. This gives management total control and a detailed history of safe access and program changes.

The Comptronic 6126 also accommodates third-party service organizations. It's ideal for many high cash business applications and, as with all S&G electronic locks, customers can integrate it with existing security systems for additional cost savings.

The hardware features include dead latching (Model 6126) or a push/pull bolt (Model 6127) and a keypad. These combinations offer a variety of levels of authorized activity and up to a 31-user capacity. Security can also be increased through dual-control access modes, providing additional benefits for multiple-shift operations.

The Comptronic locking system takes no time to make system changes, and enables managers and

supervisors to quickly change or add user codes right at the keypad.

The system can also be expanded to include a time/date audit trail with silent alarm duress capability. By adding a keypad "extension" base, an audit trail and alarm module, procedures can be better enforced and internal theft deterred with recording capabilities of up to 500 safe access and programming events. (See photograph 3.) Audit trails can be easily managed with a Windows 95/98-based software program, giving management total control through a detailed history of access to the safe and program changes. (See photograph 4.)

The system features three user groups which function independently of one another, including one with 16 PIN codes. This user group allows management the ability to control when user codes are enabled and disabled. It is most commonly used by banks where managers disable the user codes at the end of each business day.



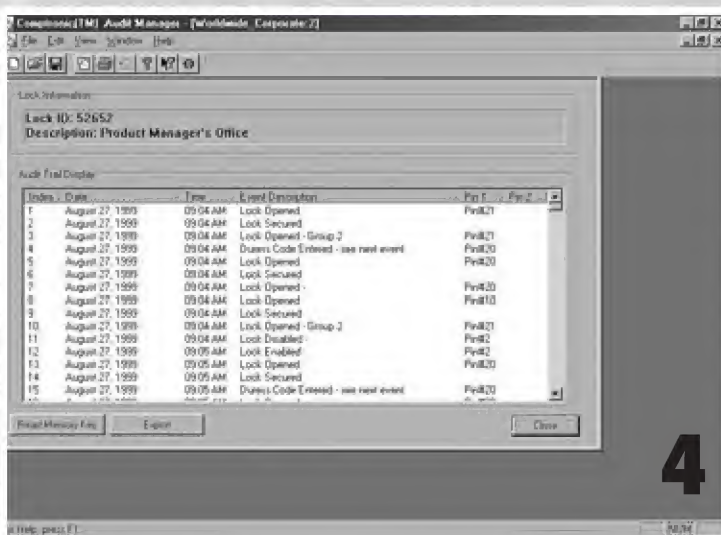
The new Comptronic 6126.



A user key utilizing a Dallas chip.

Offering a time/date
audit trail with
silent alarm duress
capability.

3



Audit trail is
managed
with a
Windows
95/98-based
software
program.

4

The manager then enables those codes the following day, replacing old mechanical key locking dials with an electronic solution.

The second user group has 10 positions and a dual control component, which requires two users to open the lock. This feature is especially ideal for businesses equipped with ATMs that are repaired or serviced by a third party.

The third user group features 5 PIN code positions, with lock access available only in the dual control mode. This group can also bypass the time-delay setting and is a good option for a variety of cash and carry companies who have cash carrier service.

Today's businesses not only look to the lock and safe industry to provide them with security solutions. They require solutions that are simple, quick and adaptable in order to allow them to focus on profit-generating activities. Sargent & Greenleaf's new Comptronic 6126 offers safe access as nimble and flexible as the businesses using it.

For more information contact:
Sargent & Greenleaf, Inc., One Security
Dr., Nicholasville, KY 40356; Phone:
(606) 885-9411; Fax: (606) 885-3063
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#SWS

June 2000 • 61

Introduction to Master Keying

Calculating Pin Sizes

Part 5

GOALS

This lesson shows how to use the manufacturers' key bittings and pin numbers to determine what bottom and top, or master pins to use when pinning a lock to two or more keys.

TERMS

Pinning Chart: A listing of tables used to determine the bottom and master pins needed to allow a lock to operate on more than one key.

Knowing some of the rules governing a good key, let's see how we can create a little of that magic we used to create more than one shearline.

We know that by using master pins we can create more than one shearline, thus, allowing more than one key to operate a single lock. We have also learned that the bitting of a key and the size of the bottom and top, or master pins are assigned numbers that correspond to the specifications given to them by the manufacturer.

We are now going to use these numbers to determine what bottom and master pins are needed for pinning a lock to two or more keys. This is accomplished by creating a Pinning Chart.

A pinning chart contains a series of tables. Each table is used to calculate what bottom pins and master pins are needed to make a lock work on more than one key. A table is created for every lock that is keyed differently. The process is very simple.

First write down the bittings of the two keys being used for the lock (if

more keys are used for this particular lock include their bittings as well).

Space	123456
Key #1:	546302
Key #2:	328584

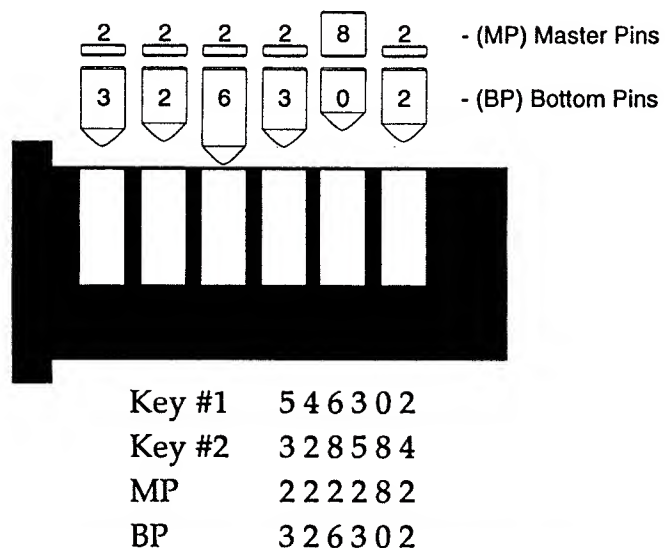
Place the bittings for the two keys into the table.

Next, for each space bring down the shallowest or smallest depth and put it in the row marked "BP" for our bottom pins. These are the bottom pins for that lock. (Remember, each column represents a space or cut on the key, with the number one space being furthest to the left.) With some manufacturers "0" is the shallowest depth and with others it is the deepest depth. Make sure which it is.

Space	123456
Key #1:	546302
Key #2:	328584
Bottom Pins (BP):	326302

Take the smallest depth from each space and bring it to the bottom row. These are the bottom pin numbers. The 0 is the shallowest cut in this case.

To derive our master pin numbers, simply find the difference between the depths in each space. For instance, in space one, 5 and 3 are the depths. The difference between 5 and 3 is 2. Therefore, 2 is our master pin number. In space 3 we have 6 and 8 as our depths. The difference between 6 and



1. While it is not necessary, we place the master pin numbers above the bottom pin numbers. This helps us to better visualize exactly how the pins are placed into the lock plug.

8 is also 2. Therefore, the master pin for that space is also a 2.

Difference of 3 and 7 = 4
 Difference of 7 and 3 = 4

To find the difference between two numbers simply take the larger of the two numbers and subtract the smaller. The term difference is simply asking how much the two numbers are different. It does not care which number is first.

Do this for each space to complete our chart.

Key #1:	546302
Key #2:	328584
Bottom Pins (BP):	_____
Master Pins (MP):	222282

To find the master or top pin number, find the difference of the key depths for each space and place that number into the row labeled master pins.

To make the chart match more closely how these pins sit in the plug we move the master pin numbers above the bottom pin numbers. (See illustration 1.)

In some instances more than one change key needs to fit a lock. This is not recommended and we advise against doing it if at all possible. But should it become necessary, simply add that key to the pinning chart.

Key #1:	546302
Key #2:	328584
Key #3:	328586

Then in each space, cross out depths that duplicate each other.

Key #1:	546302
Key #2:	xxxxx4
Key #3:	328586

For each space, cross out the depths that are the same. Each depth only needs to be presented once in each space. For example, in space one, the 3 depth is listed for two different keys. Cross one of them out, it does not matter which one it is. Do the same for each space.

Then, as we did previously, take the shallowest or smallest depth from each space and put them into the BP row. These are the bottom pin numbers.

Key #1:	546302
Key #2:	xxxxx4
Key #3:	328586
BP:	326302

Next, find the difference between the two smallest depths for each space. This is the first row or level of master pins.

Key #1:	546302
Key #2:	xxxxx4
Key #3:	328586
MP:	224282
BP:	326302

To find the first layer of master pins, find the difference of the shallowest depths for each space. For instance, in space one we have 3 and 5 as the depths. The difference between these two depths is 2. Two, therefore, is the first layer master pin for space one.

In space six we have depths 2, 4, and 6. Because none of the depths are the same in this space, we use the two smallest depths, the 2 and the 4. The difference between 2 and 4 is 2. Therefore, 2 is the master pin in the first layer for this space.

Next, for each space, add the bottom pin to the master pin. Then find the shallowest depth that has not been used in that space. The difference between these two numbers is the next level of master pin for that space. The X's mean that no master pin is needed at this level.

Key #1:	546302
Key #2:	xxxxx4
Key #3:	328586
MP:	xxxxx2
MP:	222282
BP:	326302

To determine the next layer of master pins, we first add the bottom pin number to the master pin number for each space, and then subtract it from the next highest key depth that has not been used. For example, in space one, when we add the bottom pin, a 3, to the master pin, a 2, we end up with 5. Moving up space one we find that all of the depths have already been used. Therefore, no other master pins are needed. We can see that all of

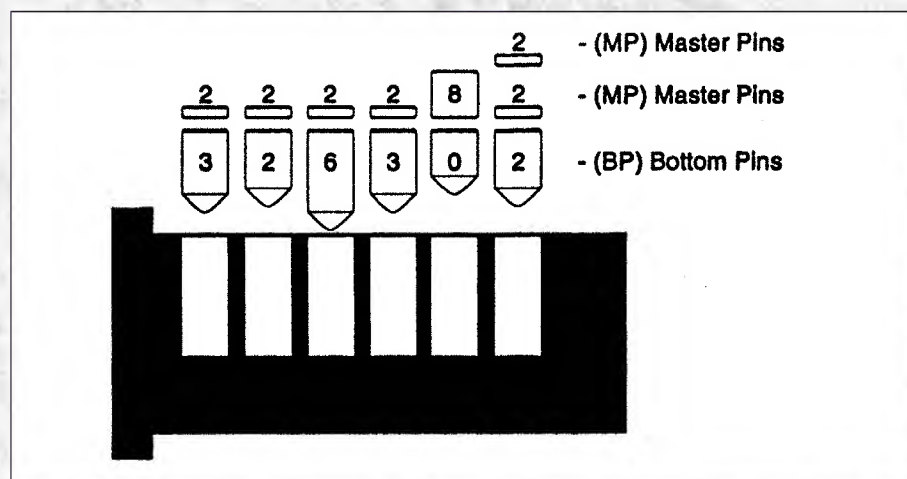
the possible key depths needed for space one, a 3 and a 5, are covered by the 3 bottom pin and the 2 master pin. Notice that the same is true for spaces two, three, four and five. We put an X to show that there is no master pin needed at this level.

In space six, however, when we add the bottom pin, 2, to the master pin, 2, we have a 4. So far we have pins in this space to cover the key depths for the 2 depth in key #1 and the 4 depth in key #2. However, we need an extra master pin to cover the 6 depth of key #3. To determine the pin size, add the bottom pin number, 2, and the master pin number, 2; this equals 4. Now find the difference between this number and the next highest key depth for that space that has not been used, the 6. The difference between 4 and 6 is 2. Therefore, 2 is the next level master pin in this space.

To verify that we have done it correctly, The bottom pins should be the shallowest depth for each space. The first level master pins (those directly above the bottom pins) when added to the bottom pins should equal the second shallowest depth for each space. The next level master pins when added to the master pins and bottom pins below them, should equal the third shallowest depth for each space.

Making a table like this for each lock in the masterkey system is called the pinning chart. The pinning chart tells us exactly what size pins to use and how the pins are placed in each lock.

When we put the pins in our plug, we first put the bottom pins in. In our example above these are 3-2-6-3-0-2. Again, remember that the first number to the left is the bottom pin



2. The first number to the left is the bottom pin for the first chamber on the plug.

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#HSS, HSS - 1

for the first chamber on the plug. (See illustration 2.)

After the bottom pins are in, put in the first level of master pins in the same order as they are listed; 2-2-2-2-8-2 from the example. When that is complete, and if you need them, put in the second layer of master pins; X X X X X 2, from the example. X means that no extra master pin is needed.

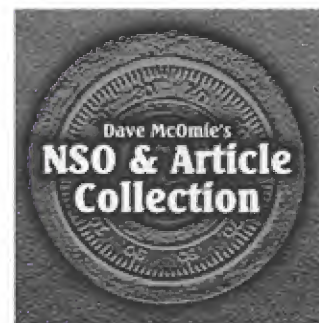
SUMMARY

When fitting more than one key to a lock, we can determine the proper bottom pin and master pin sizes through the use of a pinning chart.

By placing the bittings of all the keys that are to fit the lock into the chart, we can find the difference between the depths of each key in each space. These numbers represent the size pins that is to be in each chamber of the lock.

*Material presented is excerpted from the Basic Master Keying Course, a course on the principles and terminology of master keying published by The National Locksmith. **TNL***

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#DMCD - 2



Tubular Locks

by Bob Sieveking

Part One



Servicing tubular locks has long been a profitable portion of most locksmiths business. Until recently, I had given little thought to giving them as much attention as they deserve.

This is the first article of a multi-part series on the construction, servicing, and picking of tubular style locks. The locks to be

covered will all use a more or less standard 1137 (ILCO) key. There are other keyways and configurations in use, however, their applications are usually limited to proprietary systems that most locksmiths will seldom see.

—Tubular Lock History—

The concept of a tubular push key, is not as recent as you might believe. *Photograph 1*, is a Bramah lock of modern manufacture. It is the modern extension of a 1784 patent granted to Joseph Bramah. If you look carefully at the keyway in the photo, you will see that there are seven tumblers, arranged radially around a center post. The key shown has cuts of varying depth in the tip. The cuts accommodate and position the “plate” tumblers. It is a “pipe,” “barrel,” or “tubular” key. At the time of the patent, it was a complete departure from the security of its day. Most locks at that time were using warded key technology.

Bramahs’ sliding plate tumblers are gated, to allow the cylinder to turn only when all tumblers are depressed to their proper depth. This remained “pick proof,” only until a London locksmith devised a way to decode and pick the cylinder. The locksmith, W. Russel, devised a method of applying turning tension to the cylinder, and depressing individual tumblers, one at a time, to “pick” each, and decode their height. This information was then translated to a new key, and the lock was defeated.

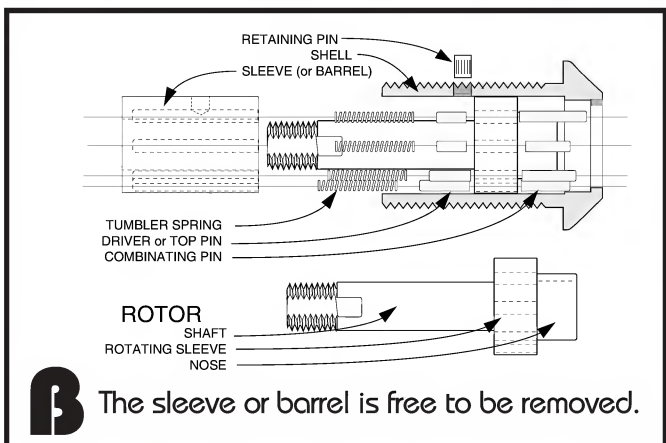
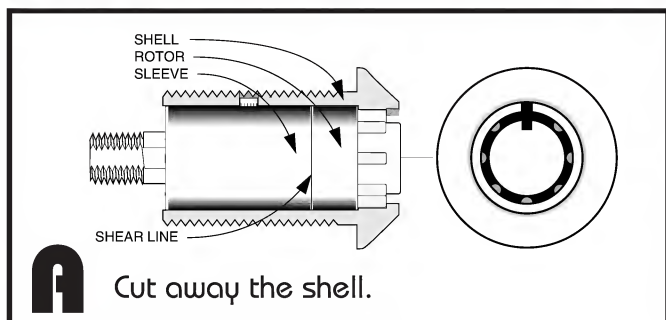
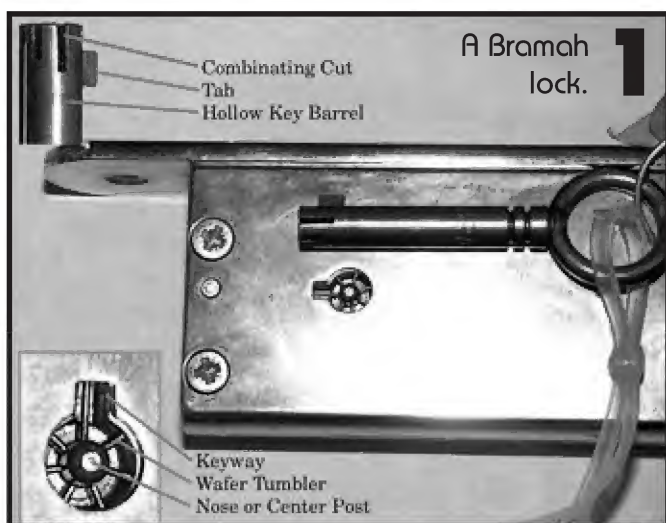
He also suggested the introduction of “false gates,” or “traps,” to defeat the pick method he had devised. This modification greatly increased the security of the Bramah cylinder, and secured him a place in the history of locksmithing. Many of the locks produced by Bramah will bear the marking “W. Russel’s Security,” attesting to his ingenuity and the increased security he pioneered.

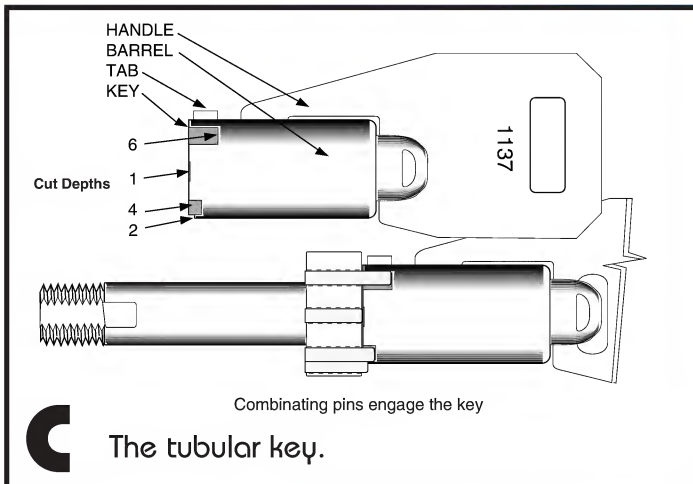
Skipping ahead to 1933, nearly 150 years after the patent of the Bramah lock, we see the introduction of the ACE cylinder by Chicago Lock Company. This great technical achievement utilized seven “pin” tumblers to secure the lock cylinder from all but the properly cut key. There have been many improvements and refinements in the tubular lock pioneered by Chicago in 1933. The principle has, however, remained in tact.

—The Basics of Tubular— Lock Design

Let’s take a close look at the most basic tenants of the tubular lock design. If you cut away the shell of a tubular cylinder you can see the sleeve (or barrel), rotor, and the shear line of a Chicago Ace lock. (*See illustration A.*) The sleeve is held stationary in the shell by a drive pin. A single drive pin anchors the sleeve in the shell, and prevents the cylinder from coming apart or being rotated. The rotor is the only part of the cylinder that moves.

When the proper key is inserted into the keyway, the





combining pins will be pushed into the rotor. Their length, and the depth of the cuts in the key, will create a break in the pin stack, or shear line, that will coincide with the shear line between the rotor and sleeve. The rotor will be free to turn.

By removing the retaining pin, as you see in *illustration B*, the sleeve or barrel is free to be removed. One pin, allows complete disassembly of the mechanism. The barrel of the tubular lock is drilled to accept the tumbler springs and driver or top pins. The rotor is made up of three parts.

The shaft of the rotor is "flatted" or "squared," to accept a boltwork or cam. It is threaded for a jam nut, which would retain the cam.

The rotating sleeve is drilled to accept the top or combining pins. The arrangement of the holes in the rotating sleeve matches the arrangement in the barrel of the cylinder.

The nose of the rotor acts as a locating post for the key as it is inserted. The nose is also keyed to insure proper alignment of the barrel of the key as it is inserted into the lock cylinder. These three parts are pinned permanently together, and rotate as a single component of the lock.

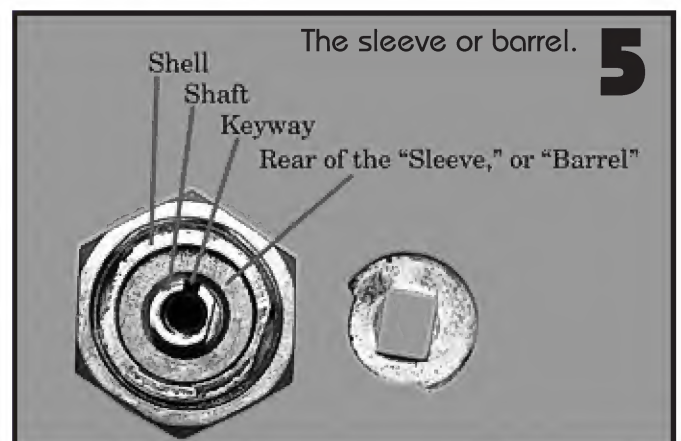
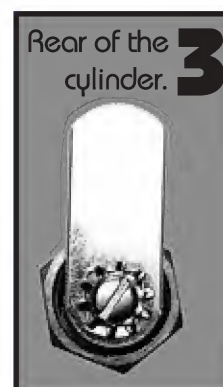
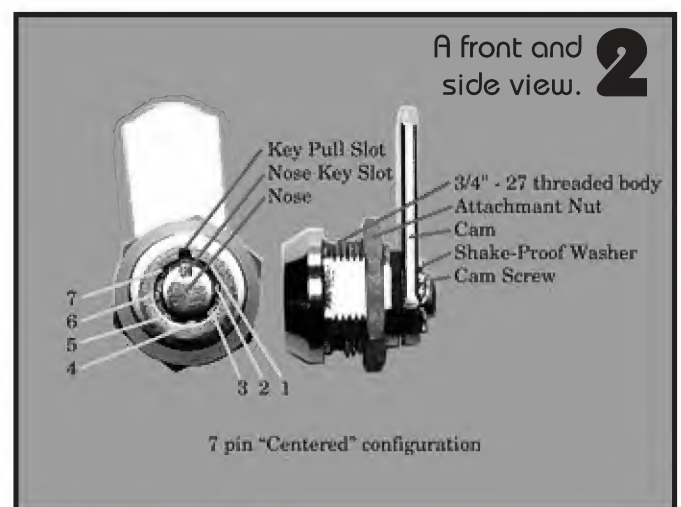
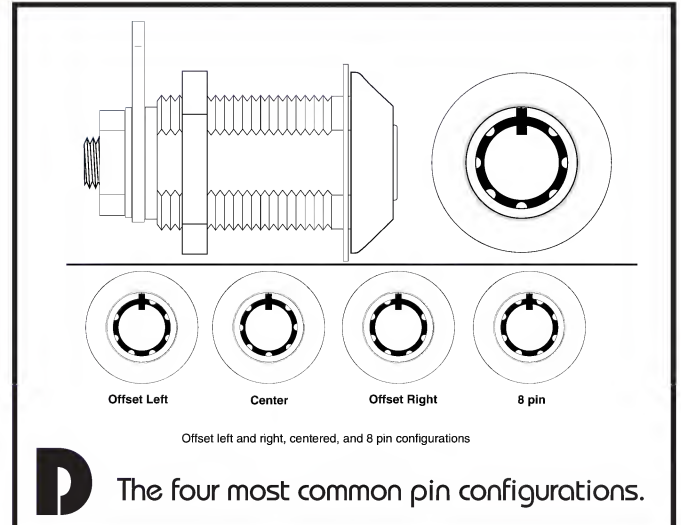
Illustration C, shows the tubular key. The barrel of the key is swedged or crimped to the handle or bow. A portion of the bow of the key passes through a notch in the barrel to form a locating "key" inside the barrel and a tab on the outside. The tab, as you see at the top of the barrel, prevents the key from being ejected from the cylinder as it is rotated away from the key pull position. The tab requires the key and rotor to be in the "key pull" position to remove the key.

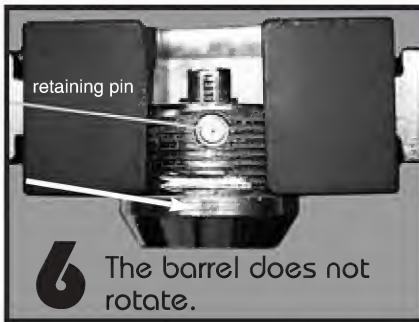
The portion of the locating "key" which extends to the inside of the barrel engages the rotor. When the key is turned, it is the locating key and not the combining pins, that cause the rotor to turn. It is also the function of the locating key to positively position the cuts in the barrel with the combining pins.

Cuts in the tip of the barrel allow the combining pins to extend up the side of the barrel. Longer pins require deeper cuts, and shorter pins will require shallower cuts in the barrel. When the pin lengths and cut depths are properly matched, the top pins will extend to the shear line, and the rotor will be free to turn. (See *illustration C*.)

The lock cylinder we are considering here has one shear line. Master keyed cylinders, lockout, and changeable cylinders will have a free floating second rotating sleeve or ring, to create a second shear line. This eliminates the need for thin master wafers. Master keyed cylinders use a technique that could easily be compared to the "ring cylinders," made by Corbin or Russwin.

In *illustration D*, you see the four most common pin





The barrel does not rotate.



Drills and taps.

2-56 taps use #50 drill

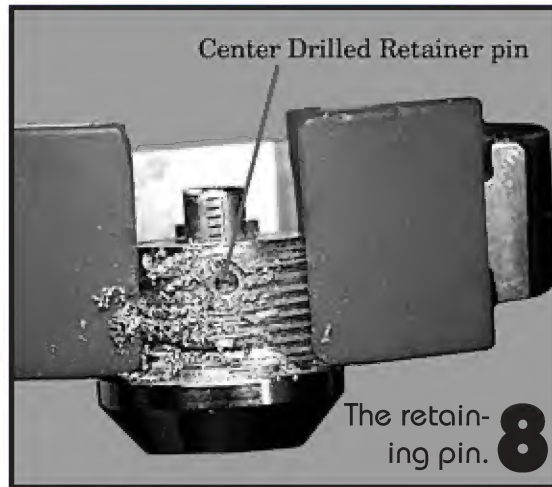


Tighten the cam screw.



The pin will lift right out.

The Pin is Free



The retain- ing pin.

designed to manipulate the 8-pin configuration, would work on offset right, offset left, and 8-pin locks.

— Tubular Cylinder — Disassembly

The first lock we will disassemble was removed from a nest of mail boxes. This is a short bodied simple tubular cam lock with one key pull. Because it is such a short cylinder, you will find the sleeve or barrel to be extremely short. This cylinder contains no special pins or traps. You will see some of those examples in the second cylinder.

Photograph 2, shows a front and side view of the lock cylinder. The key pull slot is in the rim of the cylinder shell. It is designed to accept the tab of the tubular key for insertion. When the key is rotated away from the "key pull" position, the tab will prevent the key from being removed from the cylinder. When the key is returned to the key pull position, the tab will be at the key pull slot, and will allow the key to be removed. This cylinder has one key pull position. When the key is used to unlock the mail box, it will be "retained" in the cylinder until the box is again locked.

Most cylinders will be found with; one, two, three, or four key pull positions. Cylinders designed to operate sustained contact electrical switches will have key pulls at multiple positions, with a maximum of eight key pull positions. Momentary contact switches, like those used to arm and disarm alarm panels, or actuate overhead garage door operators, will have only one key pull.

The nose of the cylinder is centered in the key hole. It pilots the barrel of the key into the lock. The nose of many cylinders is slightly higher than the rim of the shell. This feature makes the key enter the cylinder a little easier. The nose can be soft material or hardened steel, to protect the cylinder from drilling attacks. UL™ cylinders will be hardened, as are ACE II(tm), American, and Unican cylinders. Cylinders by; Parker, Gem, Fort, Guard, Greenwald, and most import cylinders will have "soft" noses.

There is a key slot in the nose. This "keyway" also locates the barrel of the key. When there are multiple key pulls, it is necessary to properly orient the barrel over the rotor, to insure that the key cuts are positioned over the correct combining pins. Without the "nose Key Slot" the key could be inserted over the nose and rotor at a position that would not solve the lock. The nose key slot also allows us to turn the rotor without placing strain on the combining pins. It could be compared to the keyway on a motor shaft, that allows us to lock a drive pulley in place.

In *photograph 2*, you can see the tops of the combining pins of our cylinder. The cylinder is a 7 pin "centered" configuration. It is a common convention to refer to the pin positions in a "clockwise" direction. The pin positions are numbered, one to seven, in a clockwise direction. This point will be very important to you when you pick or originate a new key by dimension later.

The body of Chicago, and most standard cam locks is threaded 3/4"-27. That is 3/4" major thread diameter, by 27 threads per inch. This is a standard, but all locks may not be the same.

The cam of our cylinder is retained by a screw and shakeproof washer. Some cylinders will have a nut over a threaded shaft, like you saw earlier. Cylinders found on coin boxes may have a 1/4"-20 threaded socket to accept a threaded rod. A cross-drilled hole through

configurations. The most common configuration is "centered." The centered configuration has the pins centered on either side of the locating keyway. If the pins are "offset left," they will appear as you see in the left-most keyway illustration. The seven pin pattern is rotated left of center. If the pin arrangement is "offset right," the pins will appear as you see in the third keyway, rotated to the right of center. In the 8-pin configuration, the space that was left by the offset left or right configurations is filled by an eighth pin. The pins are arranged at equal 45° increments. A fixed pick

the socket is usually found to accept a drive pin which retains the threaded rod.

Photograph 3, shows the rear of the cylinder and the attachment screw. You can see that the shaft of the rotor is "squared." The shakeproof washer is required to prevent the screw from loosening with the free play between the shaft and the lock cam.

11 Special tubular lock plug follower.

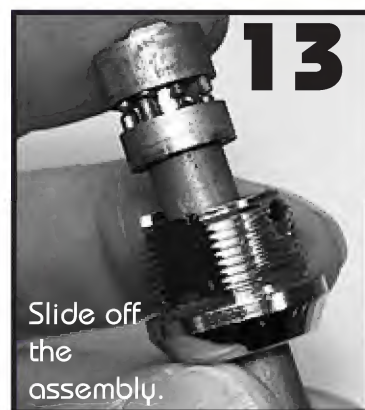


As you remove the cam you see the "limiting washer" or "limiting cam." (See *photograph 4*.) The limiting washer limits the rotation of the rotor shaft. This is a 90° limiting washer, and limits clockwise rotation of the rotor to

The follower is exactly the same size as an 1137.

12

90°. It also prevents counter-clockwise rotation of the rotor. The limiting lug is part of the cylinder shell. It is the stop lug for the limiting cam. As you remove the limiting washer, you see the rear of the sleeve or barrel in *photograph 5*. The barrel is most usually brass. The barrel does not rotate. It is pinned in place by the retaining pin. (See *photograph 6*.)



—To Disassemble— the Cylinder

To disassemble this cylinder, it is necessary to remove the retaining pin. Use a 1/16" center punch to locate the drill point at the center of the retaining pin. Most retaining pins will be steel, but I have seen them made of soft white metal as well. Because it is our goal to "remove" the pin, and not destroy it, you will drill and tap a hole in the center of the pin. *Photograph 7*, shows the drills and taps that are most appropriate for this job. I personally use a 2-56 tap (#2 wire gauge — 56 threads per inch). Drill the hole using a #50 drill bit. You may opt for a larger tap, but no larger than 4-40. Use the drill bit appropriate to the tap you are using.

Photograph 8, shows the retaining pin after it has been drilled. Drill straight, and stop when you have penetrated the pin. You don't want to drill into the barrel. Start the tap carefully, and tap

Dave McOmie's Safe Book Collection

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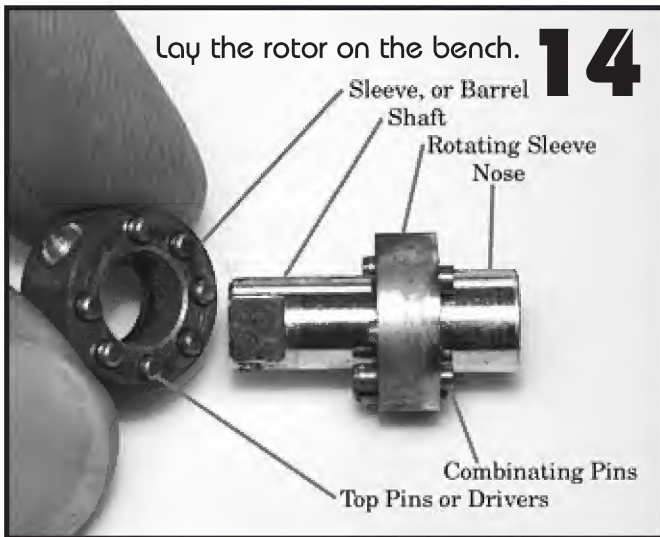
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the hole carefully, using a small hand tap wrench. These small taps won't take a lot of abuse. As the tap bottoms in the hole, the threads of the tap will usually raise the pin out of the hole. It turned out that this was a soft pin and the threads started to strip, so I went to an alternate method of removing the pin.

Back the tap out of the hole, and start a 2-56 screw into the pin. You will find that many mortise cylinders have 2-56 screws holding the cam to the rear of the plug. (2-56 and 3-48 are the most common thread sizes.)

Tighten the cam screw into the retaining pin. (See *photograph 9.*) Use a pair of diagonal cutters to "lever" the screw up, removing the retaining pin. If it is a short cylinder as we have here, you can lever against the cylinder collar. If you have a long cylinder, slip a screw driver under the diagonal cutters to lever against. The pin will lift right out. (See *photograph 10.*)

Leave the screw in the pin, as you will be able to use it to insert and drive the pin back into the cylinder when you are finished. Back the screw out after the pin is driven into the cylinder and you will avoid damaging the threads or deforming the pin with a pin punch.

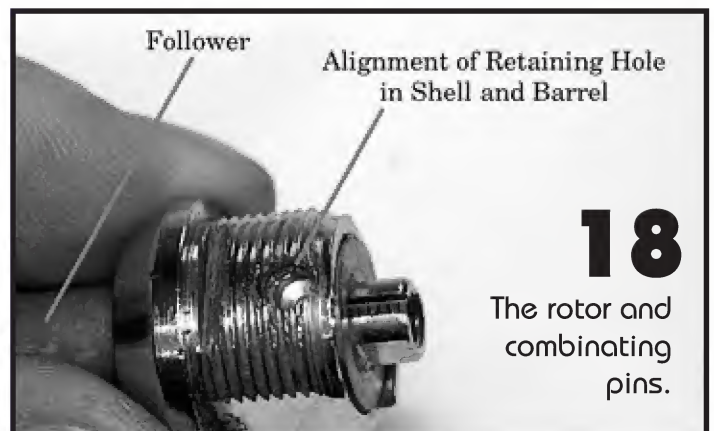
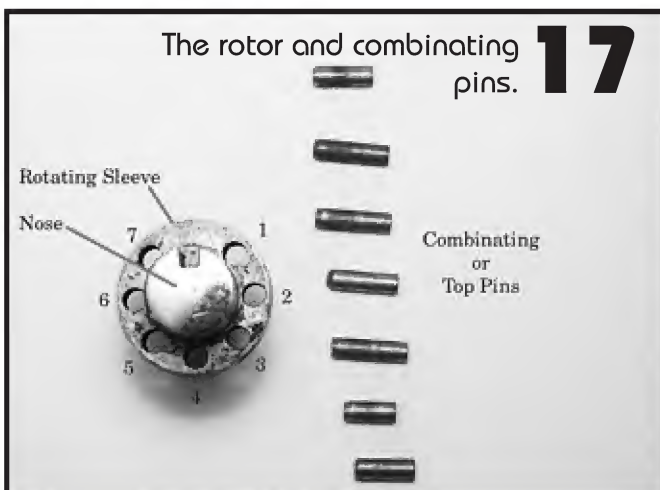
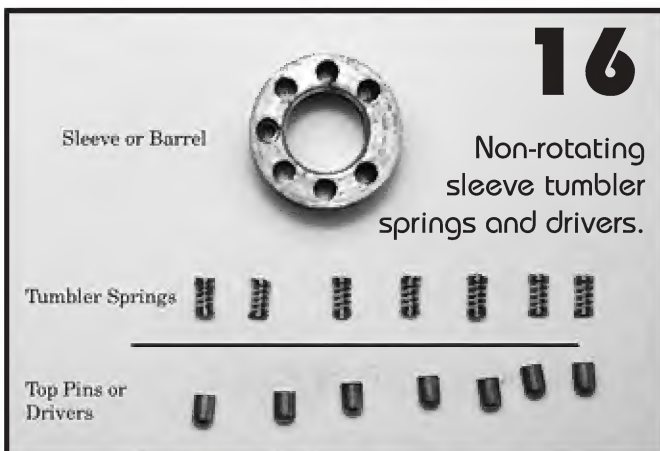
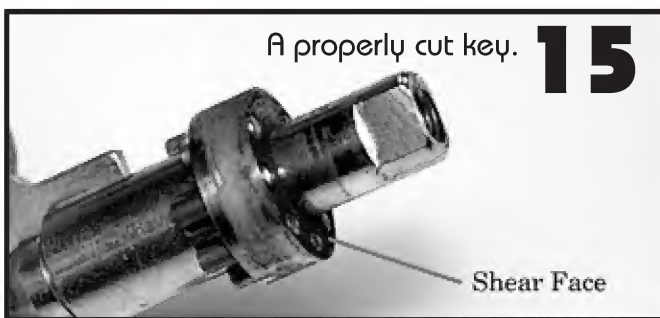
As the pin is removed, the barrel will come free. Hold the barrel inward with your finger to prevent it from coming out of the shell.

To prevent us from "scrambling" the pins and losing the combination to the lock, I use a special tubular lock plug follower. *Photograph 11*, shows two such followers. The top follower is by Fort Lock. It is included with their pinning kit. The bottom follower is steel and was part of a pinning kit made by Zipco. If you are going to work on these cylinders, you will need a plug follower. The plug follower is exactly the same size as an 1137 (ILCO) key. (See *photograph 12.*) It fits into the keyway and contacts/retains the top pins as the rotor and barrel are followed out the rear of the shell.

Maintain pressure on the barrel with the plug follower in the front of the lock and slip off the shell. *Photograph 13*, shows the shell slid off the assembly. The follower is holding the top pins in the rotating sleeve. At this point, hold the assembly "horizontal" to avoid losing the top pins as you slide the barrel off the shaft. If the barrel and rotor are horizontal when disassembled, the pins will not drop out. At least that's the theory.

Lay the rotor on the bench. (See *photograph 14.*) A ribbed bench mat makes this a little easier. Here you see the "sleeve or barrel," containing the springs and "drivers or top pins." Note that the drivers have rounded tops. The opposite end is flat. If you remove these pins, be sure to replace them with the round tops "up" to insure smooth operation of the assembled cylinder. Notice also the hole at the top of the barrel, which will accept the retaining pin.

In some "no name" cylinders, the shaft and nose are one piece. The rotating sleeve is simply pinned to the shaft by a very small solid drive pin.



A method of defeating cylinders of this type, would be to apply enough force to the nose, to shear the pin which secures the rotating sleeve to the shaft. The lock is instantly defeated. It is just as instantly ruined and must be replaced. The AAbble Ace breaker tool is ideal for opening these cylinders. It is, in this locksmith's opinion, much easier to pick and make a key to these cylinders than hunt a replacement lock. More on defeating tubular cylinders later.



The cylinder is used to secure a Pop-Up Flush Mounted T Handle.

The cylinder shown is a three piece construction. Forcing the nose "may" defeat the cylinder. It may also just remove the nose, which would require the center post to be drilled to complete the opening.

Look closely at the combining pins. You will see that they have a flat top and a chamfered bottom. This allows the cylinder to work more smoothly. It also makes them easier to pick.

If you were going to make a key for this cylinder, a set of depth keys would be handy. To decode the pins, you could measure the pin lengths using the depth key. Simply place the key on the rotor, and tip the rotor back to drop the pins into the cuts. When the pin face is level with the "shear face" of the rotating sleeve, the cut depth is correct. Write down the code, and make the working key. Be careful to read and cut your key in a clockwise direction.

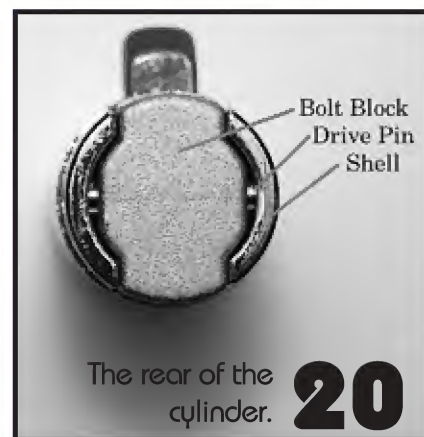
Photograph 15, shows a properly cut key, as it solves the pin combination. The pins shoulder on the key cuts to bring the various pin lengths level with the shear face. This is the working key.

The non-rotating sleeve or barrel, tumbler springs and drivers are shown in photograph 16. Because this is a short cylinder, the springs and drivers are very short. The combining kits I have didn't supply replacement springs or drivers this short. Again, notice that the drivers have a rounded and flat end. Install the rounded end toward the shear line to insure smooth operation.

The rotor and combining pins for the cylinder are laid out in photograph 17. Note that the pin positions are laid out one through seven, in a clockwise direction. The various pin lengths will determine the cut depths. The long pins require a deep cut to solve the shear line. Shorter pins will require shallower cuts.

— To Reassemble — the Cylinder

1. Replace the springs and drivers into the barrel and lay it on its side.
2. Assemble the combining pins into the rotating sleeve of the rotor.
3. Slide the shell over the follower tool and place the follower over the nose of the



The rear of the cylinder.



Wafer Lock Reading

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#WLR - 1

rotor. Hold the tool horizontal to avoid loosening the combining pins.

4. Install the barrel over the rotor shaft, to align the drivers with the combining pins. Lightly compress the barrel to the rotor. This will prevent the driver pins from falling out as you slip the shell over the rotor and barrel.

5. Slip the shell over the assembly, making sure to align the retaining pin hole in the barrel and shell. (See photograph 18.)

6. Replace the retaining pin and remove the screw. Tap the retaining pin home by driving on the screw. This will prevent damage to the tapped hole.

7. Use the new key to check the cylinder for proper operation.

If the key works properly, you are done. The keys of choice in this shop are the ILCO 1137B. I prefer to work with the brass keys. Steel keys will last longer, but they are reserved for duplication of existing working keys.

— If the Key Binds —

If the key rotates hard and acts like there might be a cut or cuts made too shallow, insert the binding key into the cylinder

and rotate it away from the key pull position. Position the key at the binding spot so that the combining pins are not over the spring drivers. Tap the rear of the key with a small hammer and remove it. Inspect the cuts to find impression marks made by the combining pin that is doing the binding. Identify the cut position, and go back to your written code. Determine the cut depth then re-cut that position a half cut deeper. This will cure the binding key problem.

— If the Key Catches —

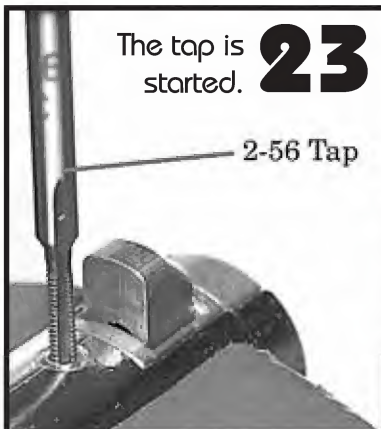
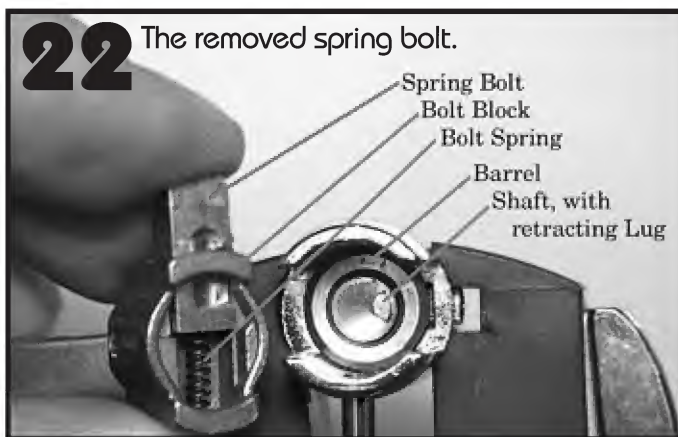
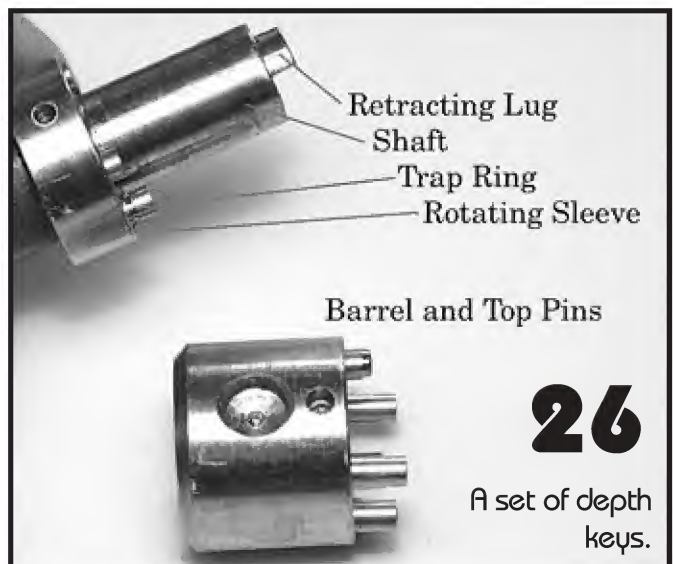
If the key catches and can be rotated away from the key pull position, then catches at another position away from the key pull, you probably have one or more cuts made too deep. This is a recoverable situation, but it will require you to ultimately make a second key for the customer. If the key is stuck in the cylinder, apply light turning pressure on the key toward the key pull position and rap it with a small hammer. This should bounce the driver over the offending position and allow the key to be turned to the key pull position and removed.

Lay a flat file on the bench. Holding the tip of the key barrel flat to the file, remove a small portion of the key. This will make all the cuts shallower, by shortening the key. Insert the key into the cylinder, and push inward as you turn the key. If the key works fine, decode the cuts or reduce the depths as necessary and make the second key. If the new key binds, go back to "If the Key Binds," above, and find the cut made too shallow. This should complete the key.

— Chicago ACE II — Cylinder Disassembly

Our first cylinder had a lot to teach us about the basic tubular lock design. Now, let's take a look at a cylinder that does not operate a cam or bolt work. The cylinder shown in *photograph 19*, is used to secure a Pop-Up Flush Mounted T Handle. These handles and lock cylinders are very popular in the vending industry. They are made by Fort and Chicago Lock in a number of styles.

There is no threaded shaft or means of attaching a cam or bolt work to the cylinder. It is a "plug" cylinder, with a "spring bolt" at the rear. When installed into a Pop-up handle, it retains the handle in the flush or locked position by means of the spring bolt. Turning the key to the right (clockwise) retracts the spring bolt, allowing the handle to pop-up so it can be turned to unlock and open the box it protects.



A close look at the face of the cylinder tells us that the lock will have to be disassembled out the rear. At the rear of the cylinder is the spring bolt and spring bolt block. These parts are retained in the shell by a drive pin. *Photograph 20*, shows the rear of the cylinder.

To remove the cylinder, first remove the drive pin with an appropriate pin punch. (See *photograph 21*.) As the drive pin is removed, the spring bolt and spring will be free to fly, so be prepared to catch them.

Photograph 22, shows the removed spring bolt assembly. The spring bolt, bolt block, and spring are removed as one part. Inside the rear of the shell you can see the rear of the non-rotating barrel and the shaft. The shaft is machined to form a retracting lug for the spring bolt. There is no limiting cam in this cylinder.

The next step is to remove the retaining pin. Chicago, seeing that the cylinders may need service or rekeying from time to time, has left us a pre-drilled hole in the retaining pin. Guess what? The hole is exactly the right size for the 2-56 tap. The tap is started into the pre-drilled hole. (See *photograph 23*.) Continue to the point where the tap bottoms in the hole. At this point the tap may become a little harder to turn. Carefully turn the tap to lift the pin out of the hole. (See *photograph 24*.) The serrated pin rises out of the hole, and you are left with the pin, as you see in the inset of *photograph 24*.

The same pin will be re-used when you reassemble this cylinder. Note that I have pushed the bolt block into the rear of the shell to keep tension on the barrel as the retainer is being removed. I didn't want to loose any pins when the barrel was followed from the shell. Use the plug follower to push the inner cylinder assembly out the rear of the shell.

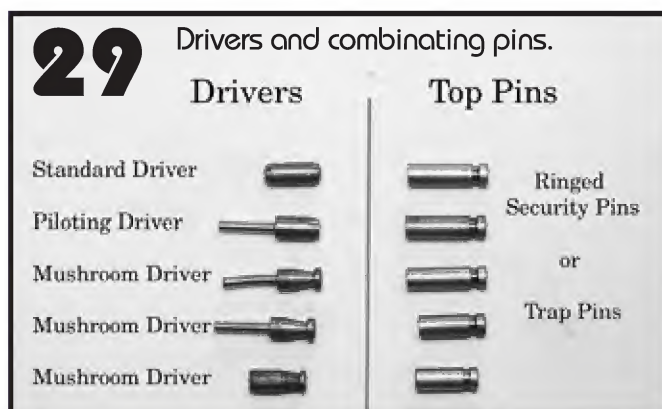
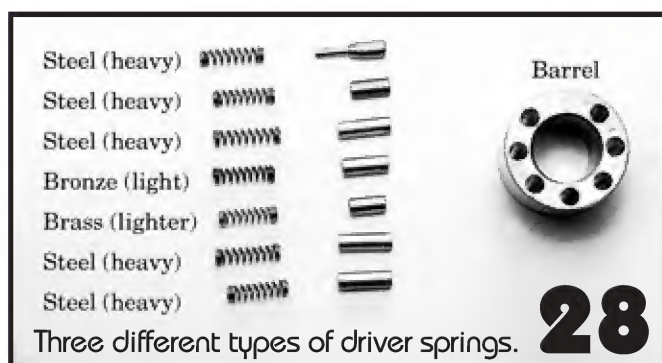
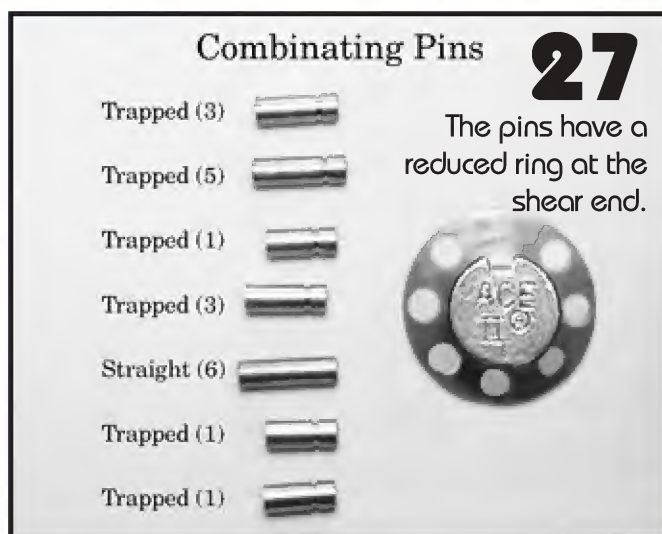
Photograph 25, shows the cylinder assembly after it was followed out of the shell. The barrel has two holes. The larger is for the retaining pin. The smaller hole is not used in this cylinder configuration. It is used in the lockout ACE cylinder, which you will see later. You can see how the pins mate, across the shear line and the rotating sleeve. The sleeve fixing pin "fixes" the rotating sleeve to the center shaft. The pins are prevented from falling out of the rotor by the follower tool.

Take a moment to study the positions of the combining pins. To the right of the fixing pin is "pin position #1." The pin in this position is a 3 depth pin. To the left of the fixing pin is "pin position #7." The pin in this position is a 1 depth pin. Position #2 is a 5 depth.

If you were making a key for this cylinder, you would use a set of depth keys as you see the follower tool being used in *photograph 26*. Place a key of known depth over the nose and tip the shaft upward. Gravity will drop the pins into the key cuts and you can easily compare the shear face of the rotating sleeve with the tops of the combining pins. Read their depths using the depth keys. Read the pins clockwise and make your key. Check the cut key in the same way you read the pins. If all the cuts are correct, you can reassemble the cylinder.

Before we reassemble this cylinder, let's take a quick look at the combining pins. Note in *photograph 27*, that the pins have a reduced ring at the shear end of the pin. This acts as a trap or semi-mushroom pin. I'm sure it is also used in the assembly process, to more easily identify the crowned face of the pin. In an automated assembly process, the groove would make an ideal "gripper" for an auto assembler or feeder. The opposite end of the pin is "dead flat," where it engages the key cuts. Note, also, that there is one "straight" non trapping pin.

The drivers of this cylinder are matched to the combining



pins by length. From top to bottom in *photograph 28*, you will notice that there are three different types of driver springs. The steel springs are heavy tension. The bronze and brass springs supply lighter tension to the pins. This feature complicates picking with an impression type pick tool. The driver at the top is a piloting trap driver.

In *photograph 29*, are some drivers and combining pins from similar locks. The standard driver is rounded for smoother operation. Locks using only this type of top pin would be easier to pick. The Piloting trap driver is used over a longer combining pin. It prevents the driver spring from being crushed as a shallow cut key is inserted into the cylinder. It also prevents a key with a shallow cut from fully bottoming in the cylinder.

The remaining drivers are mushroom drivers. Turning tension on the cylinder will cause them to "trap" at the shear line, complicating further picking attempts. The combining pins shown are ringed. They act very much like the mushroom pins. They are designed to jam at the shear line, with turning tension on the cylinder. **INL**

BEGINNER'S CORNER

Master Lock Knobset & Leverset.



by
**Jim
Langston**

Master Lock Knobset

To service the Master Lock knobset, you must first remove the cylinder assembly from the knobset. To do so, hold the outside knob assembly in one hand with the rose resting in the middle of your palm. The notches of the turnbar are then placed between the thumb and index finger. (See *photograph 1.*)

NOTE: The alignment marks ("Master" logo/arrow) on the backside of the rose must be in the upward 12 o'clock position.

Holding the assembly firmly in your hand, pull out on the turnbar with your thumb and index finger, retracting it away from the knob. Insert the operating key in the outside knob assembly and turn counter-clockwise 180 degrees. The key will now be in the upward 12 o'clock

position while simultaneously pulling out on the turnbar. The cylinder assembly can now be removed from the knob. (See *photograph 2.*) Release the turnbar and set the outside knob assembly aside to reassemble later. You are now ready to rekey the cylinder.

The cylinder assembly consists of the cylinder case assembly and the key plug assembly. To remove the plug, take a pair of retaining ring pliers and remove the retaining ring at the end of the assembly. (See *photograph 3.*) Do not over stretch retaining ring while removing it. If bent out of shape, the ring will not snap back into position when reinstalled.

Next, remove the stop washer and set it aside. (See *photograph 4.*)

Now remove the cylinder stop. (See

photograph 5.) Cylinders produced prior to April 1994 require flat design



3. Remove the retaining ring.



4. Remove the stop washer.



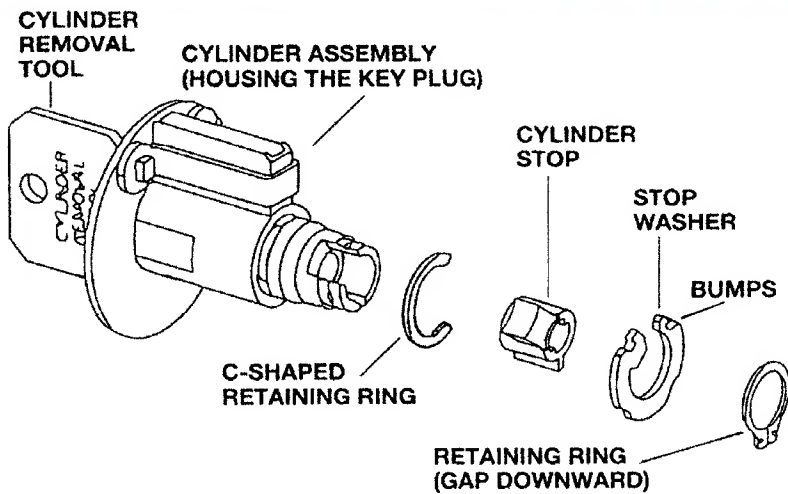
1. The turnbar is placed between the thumb and index finger.



2. The cylinder assembly can now be removed.



5. Remove the cylinder stop.



Note: Cylinders produced prior to 4/94 require flat design cylinder stops. Two stops required per cylinder.



A. Two stops are required per cylinder.

cylinder stops. Two stops are required per cylinder. (See illustration A.)

Finally, remove the C-shaped retaining ring with tweezers or small screwdriver. (See photograph 6.)

To remove the plug from the cylinder assembly, you must turn the


plug so the bottom pins are not aligned with the top pins. Turn the knob plug to the 2 or 3-o'clock position. Using your following tool to push the key plug out of the cylinder assembly. You are now ready to rekey the key plug. (See photograph 7.)

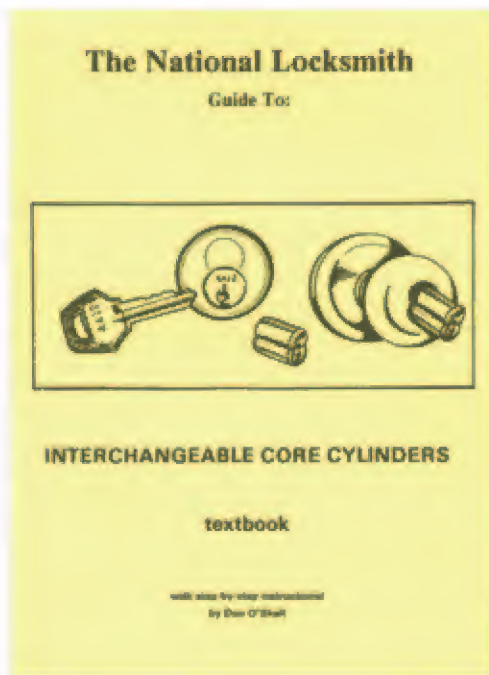


6. Remove the C-shaped retaining ring with tweezers.



7. Push the key plug out of the cylinder assembly.

The master lock is no longer in production, however, you will still encounter them in the field. 



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3rd Prize

Curtis 2200 Duplicator



4th Prize

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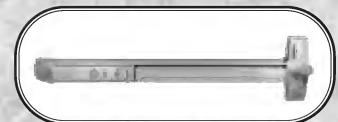
5th Prize

Securiton 12-Volt Unlatch Plug in
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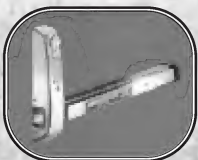
6th Prize

LaGard "SmartGard"



7th Prize

Detex Advantex



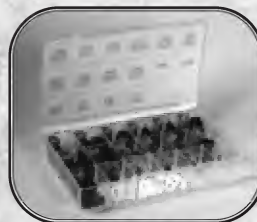
8th Prize

Arrow 400 Series Alarmed
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Plate Kit for Narrow Stile
Aluminum Doors



9th Prize

\$500 in BWD Products



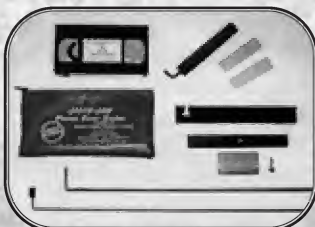
10th Prize

\$500 in ASP Auto Locks



11th Prize

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12th Prize

Tech-Train "Jiffy Jack"



13th Prize

Sargent & Greenleaf 6120
Electronic Safe Lock



14th Prize

High Tech Tools
2000 Pro Set

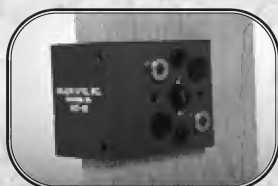


15th Prize

Slide Lock's Master "Z" Tool Set



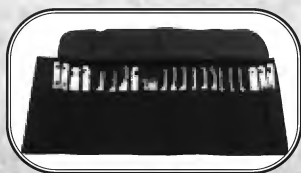
16th Prize
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17th Prize
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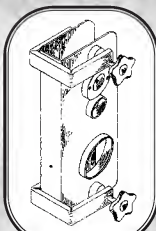
20th Prize
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21st Prize
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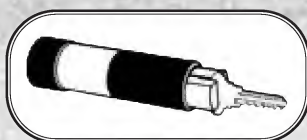
22nd Prize
Rodann's TX 500
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25th Prize
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- The Sieveking Auto Key Guide
- Jet Key Blanks (100 Blanks)
- High Tech Tools
- LaGard Combo Guard

Send in your tips, and win!

How To Enter

Send a tip on how to do any aspect of locksmithing. Certainly, you have a favorite way of doing something that you would like to share with other locksmiths. Write your tip down and send it to:

Jake Jakubowski, Technitips Editor,
The National Locksmith
1533 Burgundy Parkway
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Or send your tips via
E-mail to: Natlock@aol.com

Rules & Regulations

Each tip submitted must include your full name, street address (no P.O. Box numbers), city, state, zip code, phone number, fax number or e-mail address.

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Prizes are arranged according to suggested retail price value.

Tips Start
on Next Page



**BWD KWIKIT WINNER:
Ford 8-cut
Progression**

I have a progression technique for Ford products that has served me very well. First, I pick the lock on the passenger's door and turn it about a quarter of a turn and stop. With the lock in this partially turned position, I use an Otoscope to read the wafers which gives me the first six cuts on the key.

Learning to read the wafers takes a little practice, but because of the configuration of these locks, reading them is really a very simple task. The first, third and fifth cuts are on the bottom and the second, fourth and sixth cuts are on the top. Knowing this, you can easily sight read each depth without much difficulty. After decoding the lock, code cut a key and make sure that it works freely with no sticking.

Keep in mind that these 8-cut Ford locks have a MACS of two just like the old GM. That is, a one and four, or a two and five will never be side-by-side on the key. Once I determine the cuts for the door and code cut the proper key, here is how I progress the seventh and eighth cuts to obtain a working ignition key.

Key # 1: 1-, 1-2, 2-2, 2-3, 3-3, 3-4, 4-4, 4-5, 5-5

Key # 2: 2-1, 3-1, 3-2, 4-2, 4-3, 5-3, 5-4

Key # 3: 1-3, 2-4, 3-5

I can usually make one of these keys in about fifteen minutes without disassembly or tear down. Ford has provided a very large keyway for these locks, which makes viewing the wafers a dream.

*Mike Buckley
California*

Editor's Note: For those of you who feel your wafer reading skills are not up to par, you should take a look at Bob Sieveking's wafer lock reading kit and book. You can preview it on his web site at sievekingprodco.com.



**WEDGECO™ KEY
EXTRACTOR KIT WINNER:
American Padlock
Picking**

A customer brought me fifty-six American Padlocks to rekey and did not have any keys for them. I had never tried picking an American Padlock before and it didn't take me long to realize that conventional picking was not the way to go on these locks. Since the retaining screw is under the shackle, it was necessary to get the locks open

Jake's Jabber...

This month I thought I'd pass on some tips that at one time or another made my life a little easier. These are nothing earth-shattering here, just useful tips that are sure to be helpful.

Schlage Tailpiece Alignment:

If the tailpieces on a Schlage double-cylinder deadbolt are giving you a fit when you're trying to align them (you know how easily they fall out), put a dab of grease or Vaseline in the retainer cap. Just a dab will do ya. This will hold the tailpiece in place and make it easier for you to align both tailpieces for installation.

Mortise Cylinder Removal:

If you are trying to unscrew a mortise cylinder from a narrow stile aluminum door and the cylinder won't turn, try loosening the screws that hold the lock in the frame. Sometimes those screws are tight enough to cause the mortise cylinder to bind against the back edge of the cross bore. You can also use an uncut blank as a turning tool. If you need more leverage, grip the blank - as close to the face of the lock as possible - with a pair of regular pliers and gently apply turning pressure but do not twist the blank.

Tailpiece Removal:

If the screws that hold the tailpiece or cam on a mortise cylinder won't release, use a screwdriver with a good tip on it and hit the handle of the screwdriver with a hammer while applying turning pressure to the screwdriver. This will often persuade a stubborn screw to back out.

KEEDEK make an excellent tool for removing stubborn mortise screws called "The Spinout". I've even used the Spinout to remove stubborn deadbolt screws, etc. It's a versatile tool that really works.

Mortise Cylinder Drilling:

Need to drill out a mortise cylinder at the shear line but hate to fight with the springs and pins that fall into the plug? Using the appropriate key blank, cut off the top portion of the head and stick the blank in the plug before you drill for the shear line. When you've completed drilling the shear line, the uncut blank acts as a turning tool to rotate the plug to the unlocked position. If the plug doesn't want to turn because of trapped pins, gently rap the face of the cylinder while applying turning pressure to the key.

A Helping Hand:

Need a third hand to hold a push plate, kick plate or other type of hardware on the door while you mark the drill points? Use double face carpet tape. If you have something heavy; like a closer, etc. 3M makes some heavy duty double faced tape that is available in most hardware stores.

Speaking of 3M. They make a great non-slip sticky-backed tread tape that you can install in areas of your home to prevent accidents. I've found it is also useful on the back bumper of my service van to keep my shoe (especially when the bumper is wet) from slipping off the bumper and dumping me in the parking lot!

See y'all next month.



*by Jake
Jakubowski*

before I could start rekeying.

I tried drilling the bottom of the retainer, but it was hard enough that I couldn't even center punch it. Next, I used a Dremel tool to grind the head of the retainer down as low as possible without damaging the retaining plate. This created a slight concave in the head of the retainer. After that I was able to use a 1/4" carbide bit to drill out the rest of the retainer and remove the cylinder.

I found that by shim picking I was able to pick the cylinders and rekey them. I also found out that even with shim picking, the tolerances in these cylinders are such that you have to proceed with a light touch.

Once the cylinders were rekeyed, I only needed to put new retainers in, reinsert the retaining screw and the locks were ready for the customer.

*Mel Olmstead
Canada*

Editor's Note: Mel, thanks for the tip. Many a locksmith - including me - have shared your frustration in picking American Padlock cylinders. With their close tolerances and serrated pins, they are definitely challenging. I have found that the quickest way for me is to use my "Rotary Pick". I run a 1/4" bit down the center of the keyway, 'rap' the pins and springs out, turn the plug with a screwdriver, open the shackle, remove the retaining screw, remove the drilled cylinder and replace it. American Padlock cylinders (#PTC-14) can be purchased from your favorite supplier for about \$3.50 each (your cost), with a list of around \$7.00. For me, that's the cost-effective way of getting around a hairy picking situation. The cost to the customer is roughly the same (plus the charge for rotary picking) but I spend less time shimmying or drilling retainers.



**STRATTEC RACING
JACKET WINNER:
Worn Toyota Plug
Fix**

I have had a large number of Toyota ignition plugs where the shoulder stop in the plug is worn down to the point it allows the key to seat too far into the plug. This does not allow the key to properly align the wafers at the shear line, which prevents the plug from turning.

Obviously, the best solution is to just replace the cylinder. I always recommend replacement to my customers that have this problem, but many of them either cannot afford to replace the plug or do not want to do so. So, I came up with a way to 'repair' the old plug.

First, I remove the cylinder and the plug and code cut a new key. I insert the new key until the wafers all meet exactly at the shear line of the plug and I mark the plug where the tip of the key stops. (See illustration 1.)

Next I take a Schlage Cylinder Cap Pin (Part #C503-166) and drive it into

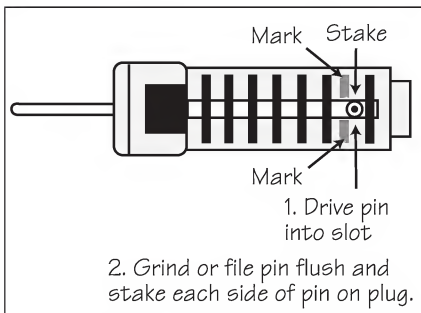


Illustration 1.

the slot in the plug at the point I made my mark indicating the tip of the key. I grind and file the ends to the cap pin flush with the plug and then swage the plug on each side of the pin with a screwdriver.

Now the Toyota plug becomes a tip-stop plug rather than a shoulder stop and the wafers will come right to the shear line each time the key is inserted.

I know that eventually the tip of the key will probably wear down to the point where it will no longer allow the key to seat properly. But, since most

of the Toyotas I perform this repair on are already six to ten years old, I don't think most of them will outlast the repair.

*Chuck Frazier
California*



HPC AIR WEDGE™

WINNER:

Komatsu Crane Keys

I had a customer that needed some duplicates for a Komatsu crane. The key the customer had was a Curtis key with KM1 stamped on it. I couldn't find a match in any of my books or on my computer, so I began searching through my keyboard.

IC Cores: Small Format



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troubleshoot interchangeable cores!

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#ICSF - 1

To my surprise a Harley Davidson key (X95) works just great. The only difference I saw was that the blade on the X95 was a little longer than on the Curtis number. I just trimmed off the excess length at the tip of the blank. The Komatsu key, like many Japanese keys, is gauged from the tip.

*Marc Grizzard
South Carolina*



SARGENT & GREENLEAF 4400 SERIES SAFE DEPOSIT BOX LOCK WINNER: Ace Pin Decoder

I do a lot of tubular key and lock work and as a consequence, I need to decode locks for both rekeying and key making purposes.

I've found an easy way to decode these pins. I cut a key with depths 1 through 7. Then I glued an old tubular lock inner bushing to the key. I was careful not to get any glue into the pin chambers. Now when I need to decode a tubular lock, I just insert the unknown pins into my decoder until they match and have the correct depth. (See illustration 2.)

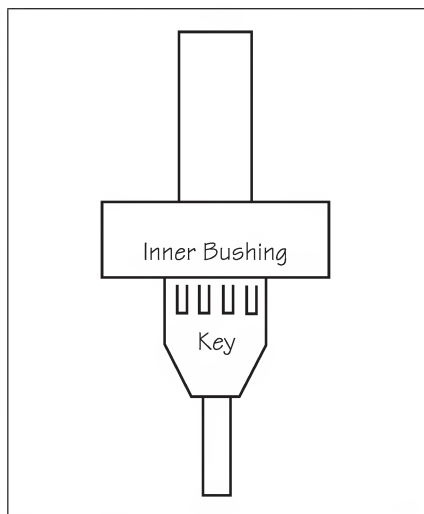


Illustration 2.

It is a very simple, effective and economical way of decoding these pins.

*J. N. Adams
Colorado*



A-1 SECURITY PRODUCTS WINNER: American Rekeying Trick

I had a customer that handed me two boxes of American Padlocks - sixty-five in all - and said he needed them rekeyed as an employee had left and had not turned in their keys.

I carted the locks out to the truck and discovered that I did not have my American Padlock rekeying kit on

82 • Visit www.TheNationalLocksmith.com

board and then found out that I did not have my Master repining kit either. A twenty-odd mile round-trip to the shop was unappealing and I decided to try working with what I had.

The code for the current key was 3-7-6-8-4. I cut twelve new keys on my 1200CMB to the code of 3-7-6-4-8 and repined the locks accordingly. All I did was reverse the fifth and sixth pin, eliminating the need for a pinning kit.

We frequently have to make do with what we have to work with. In this case, everything I needed was right there. It was just a matter of recognizing it.

*Jay Christie
North Carolina*



ILCO KEY BLANKS (100) WINNER: Clear Plug Followers

I have found what I believe to be the best plug follower ever at my local tropical fish store!

Rigid, clear, plastic tubing!

I bought a 3' length of 1/2" OD tubing for three dollars, took it home and cut a bunch of different length followers out of it. Then I used a Dremel tool to cut a notch in one end to compensate for protrusions on various plugs. (See illustration 3.)

The best part is that the clear plastic allows me to see into the upper chambers and determine if there are pins missing. With these clear plastic

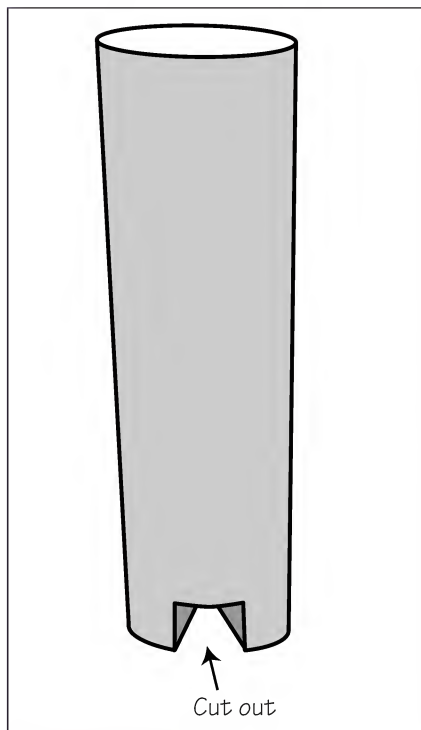


Illustration 3.

followers I can see at a glance if there is a problem in the upper chambers that I would not have been able to see with a conventional follower.

Not a bad deal for three bucks and a few minutes work with a Dremel tool.

*Bobby Brown
Florida*



KEDEX "SPIN OUT" SCREWDRIVER WINNER: Stripped Screw Hole Repair

I'm always looking for the perfect material to repair stripped out screw holes. I have tried epoxy, matches, toothpicks and even wooden golf tees. Recently, I found a product in my local hardware store called Mr. Grip® by Woodmates.

The material is a perforated aluminum that you insert into a screw hole and replace the screw. The perforations on one side tightly grip the screw and the perforations on the other side 'bite' into the wood. It makes an excellent, permanent repair.

I have even used Mr. Grip® to repair stripped holes in narrow stile aluminum doors to re-secure Adams Rite locksets and in one instance used it on a hollow metal door to reattach a sign where the screws had stripped out.

All you need to do is cut Mr. Grip® to size, roll it and insert it in the worn screw hole.

*Don Dodson
North Carolina*



TECH TRAIN TRAINING VIDEO WINNER: General Purpose Applicator

Ink jet cartridge refill containers - the type with the long needle for injecting the ink into the cartridge and the bellows for forcing the ink through the needle - make excellent precision lubricators for locks. (See illustration 4.)

You can use them to lubricate the lock mechanism of a mortise or Adams Rite lock without removing the cylinder.

After emptying and cleaning the cartridge, fill it with alcohol to flush out greasy locks for wafer reading, or fill it with the lubricant of your choice. Just insert the needle into the lock cylinder, etc. and as you withdrawal the needle depress the bellows to apply the solution to the lock.

*Bill Cochran, CRL
Wisconsin*

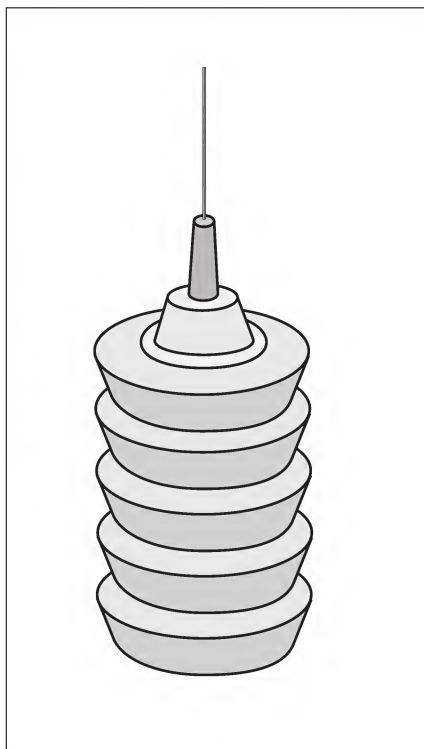


Illustration 4.



**SIEVEKING
 PRODUCTS GM E-Z
 WHEEL PULLER
 WINNER:
 No Tear-down Lock
 Code Retrieval**

In the case of Toyotas and many foreign cars where the lock cylinder is not in the handle mechanism, it is possible to retrieve the lock code after you have unlocked the door and rolled down the window. You can see the codes simply by using an inspection light and a mirror with a telescoping handle.

First, gently wedge the window back away from the outside edge of the door. Using an inspection light and mirror to look on top of the lock cylinder. On some locks, the code may be on the bottom of the cylinder housing or on the side, that's where the mirror comes in handy.

It is also helpful to have a cleaning stick to wipe off road grime, dust, etc. from the cylinder housings. You can fabricate one by wrapping a small piece of rag or towel material around the end of a plastic rod or piece of stiff wire.

I find this procedure to be a real time saver and make it a habit of trying to locate the codes on the cylinder housing before I begin pulling door panels. *Larry Bennett
 California*

Major
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 PRODUCTS
 WINNER:

Ford Pickup Progression

When called to make keys for a 1997 Ford pickup, I noticed that the tailgate had a lock on it. I found out that the lock contained six of the eight cuts that I would need to make a working key.

After cutting the six depths found on the tailgate key, I progressed the seventh and eighth cuts. The longest part of the job was making up a progression chart for the locks on the spot. Once I had that, it was simply a matter of determining the right key. Total time was about forty minutes.

*Jeff Stout
 Arizona*

Editor's Note: Jeff, thanks for sharing your tip with us. Ford 8-cuts can easily be decoded with H. E Mitchell's E-Z readers. It's a handy tool to have around since they save you the work involved in removing the lock cylinders from the vehicle.



**SLIDELOCK'S "Z" TOOL
 OPENING SET WINNER:
 Screen Door Opening
 Tool**

A customer of mine had a handyman install a new screen door with a latch that also had a key-in-knob feature. The lock had apparently malfunctioned and the lady could not open the door. Picking didn't work and I didn't want to damage the door or the lock getting the customer in.

A little experimentation showed me that by inserting a heavy screwdriver under the door, I could lift the door high enough to allow me to get a heavy piece of wire under the edge of the door. Using approximately thirty-six inches of galvanized clothesline, I fashioned the tool you see in *illustration 5*.

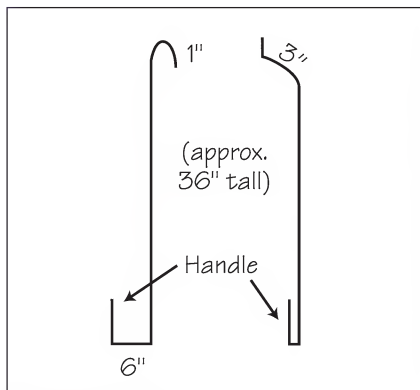
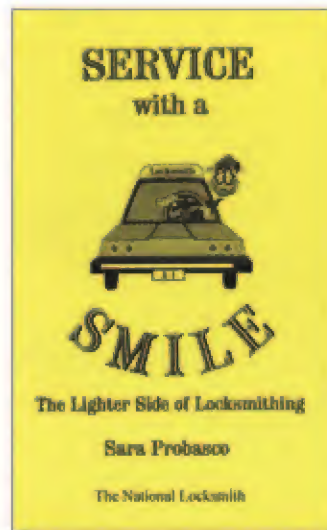


Illustration 5.

Service with a Smile



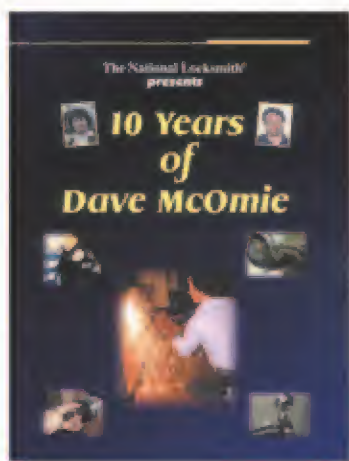
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#DM - 10

Sliding the tool under the door and manipulating it up to the inside latch, I was able to pull the latch down and unlock the door.

It turned out that the handyman had cut the tailpiece for the lock too short and it would not allow the key to activate the locking mechanism. I fabricated a new tailpiece and repaired the lock.

*William Earl Knuckles
Kentucky*



**THE SIEVEKING AUTO
KEY GUIDE WINNER:
Zap Plastic Face
Cap Tabs**

Removing and installing plastic face caps with the plastic tabs on them has always presented a problem for me. The tabs would either break when removing the face cap or I could not get them tight enough when installing one.

One day while in a truck stop, I found a "ZAPPER" which is nothing more than a 12-volt electric coil that plugs into a cigarette lighter. It is used to heat beverages and soups. (See illustration 6) The ZAPPER cost me about \$7.00.

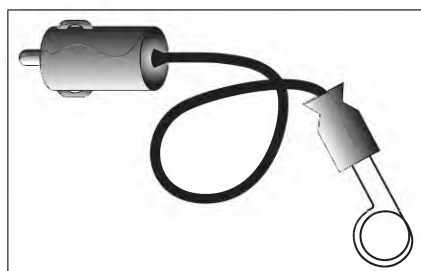


Illustration 6.

I use the ZAPPER to heat the tabs on plastic face caps that I want to remove from a cylinder and when replacing the cap or installing a new one, I heat the tabs so I can easily bend them down tightly on the rim of the cylinder housing.

Although the coil on the ZAPPER is rather large for close work, I found that I could insert a small piece of flat metal between the coils that will give me more precision in directing my heat source to the tabs.

Since the ZAPPER does get very hot, you need to use caution when using.

*Ron Pearly
Missouri*



**JET KEY BLANKS
(100) WINNER:
Key Machine
Calibration Test**

An easy way to test the accuracy of

your key machine calibration is to take a new, architectural grade cylinder with factory cut keys, such as Corbin/Russwin or Sargent, and cut a duplicate key.

Now remove the cylinder plug and insert the duplicate key. If the crowns of the pins all align perfectly at the shear line, then the calibration of the machine is correct. If the crowns are higher or lower then the machine needs further adjustment.

For best results, never use import cylinders for this purpose, as the tolerances may not be the same as the original equipment. *Peter P. Schifferli
New York*



**HIGH TECH
TOOLS WINNER:**

Disabling Kwikset

A customer wanted single cylinder deadbolts installed because his father was moving into the house and he didn't want his father forgetting where the keys to the double cylinder deadbolts were.

He also asked me if I could disable the locking function on the Kwikset knoblocks. I usually just punch the turn button out, but the customer didn't like the idea of having holes in the knobs.

I took the knobset off of the door and clamped the actuator rod with a pair of pliers, inserted a screwdriver in the end of the rod and broke the rod off. (See illustration 7.)

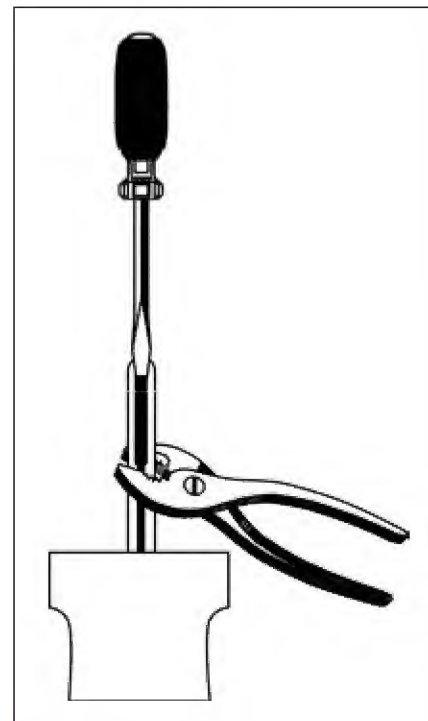
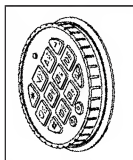


Illustration 7.

This prevents the knobset from being locked and the customer was happy with the results. *Ronald Pang
California*

Editor's Note: Ron, thanks for sending in the tip and it is one way of disabling the locking function on a Kwikset knob. However, I wonder why you just didn't remove the locking spindle rather than breaking it off? Without the rod, the knob would have still operated but it would not have had a locking capability. I assume the reason the customer wanted the knobset disabled was so his father could not get locked in (or out for that matter). By breaking the rod off instead of removing it, the possibility exists that the knobset could be locked (on purpose or inadvertently) with a key and the father could be locked inside the home with no means of egress. By removing the locking rod completely, you eliminate this possibility.



LAGARD COMBO
GUARD WINNER:
Fast VATS Rekey

Here's a way to re-key a VATS ignition in about ten minutes with a cost of less than a dollar!

Determine the original resistance value of the key and then cut one wire of the ignition leads and solder in a resistor equal to the difference in ohms between the old VATS key and the new VATS key with the lower resistance value.

Next cut the old key on to a new VATS blank with the proper resistance value and the vehicle is "rekeyed."

If someone tries to use the old key, the on-board computer reads an improper resistance value. When the new key is used the computer reads the new resistance value and allows the car to start.

*John Soderland, CML, CPS
Wisconsin*

Editor's Note: John, thanks for the tip. I know the procedure you outlined will work, but I'm concerned about the potential liability. If something within the ignition system fails and the customer is told by the dealer that the vehicles warranty is void because of the modification, then what? Although you did not stipulate it in your tip, I assume you are clipping the wire and inserting the new resistor where the wires exit the column under the dash. Otherwise, the ten minutes you mentioned would not be enough time to accomplish the task.



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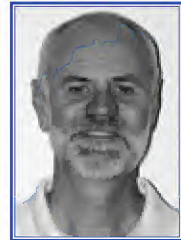
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#DIS - 2000

The 1998 Yamaha YZF600R

1 The Yamaha YZF600R is a popular sport bike and there are a lot of them on the road. Although there are no key codes anywhere on the bike, originating a key for this motorcycle is not difficult. Begin with the gas cap lock.



by
**John
Blankenship**

Gas Cap



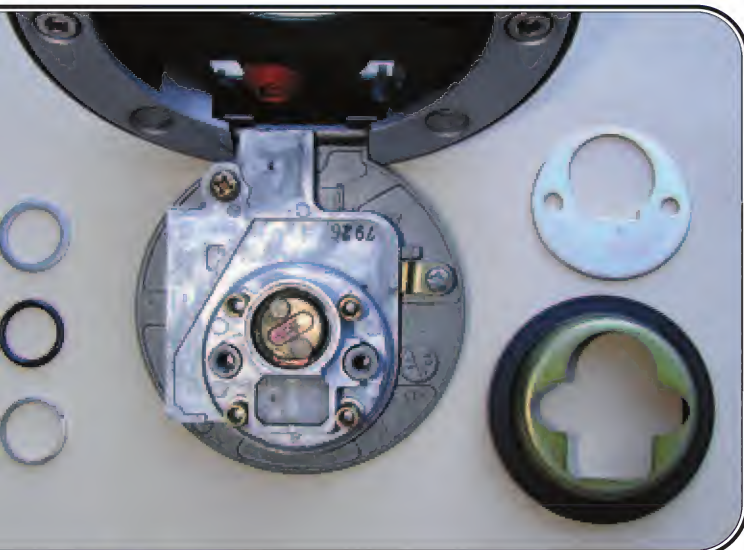
2 Pick the gas cap lock 90-degrees clockwise against spring pressure. This lock is very easy to pick with a rake. Raise the cap and plug the filler neck with a rag to prevent screws or anything else from falling into the gas tank. Use a 3.5mm or 9/64" hex wrench to remove four bolts. Three of the bolts have been removed from the mounting ring and the hex wrench is shown in the fourth bolt that needs to be removed. The other four bolts in the mounting ring do not have to be removed. Now you can remove the gas cap from the gas tank.



3 The gas cap is shown removed from the motorcycle. The number on the bottom of the gas cap is not the code. Remove the two Phillips screws that secure the locking bolt housing.



4 The locking bolt housing has been removed along with the locking bolt and spring. The back of the plug is now exposed.



5 The backing plate and sealing plate have been removed and placed on the right. There are four springs mounted over four posts that should be put in a safe place so that they are not lost. The washer and O-ring were removed from the rear of the plug and placed on the left. The gas cap is then turned over to allow the bushing to fall out from around the plug; it was placed on the lower left. Now the retaining wafer can be seen on the lower side of the plug. Push the retainer into the plug and push the plug out the front of the lock. The wafers fall out easily so be careful not to lose any or mix them up.



6 The gas cap plug contains five wafer tumblers in spaces 3 through 7. Insert an X248 blank into the lock and read the height of the wafers. The photograph shows that the last five cuts are 32234. Put these five cuts onto the blank and make sure it works the gas cap lock smoothly. Now you need to find the cuts for spaces 1 and 2 that are only in the ignition lock. The best way to do this is by using key code software. A search revealed that there are only four possible codes using the cuts 32234 in the last five spaces. The first two cuts can only be 14, 23, 32, or 41. The first two cuts turned out to be 14, which means the code number is A7940 with cuts of 1432234. Other ways to determine the first two cuts are progression, reading, or impressing the ignition lock.



7 The wafer tumblers from left to right are depths 32234. The retaining wafer is open on the bottom to prevent a pick from being used through the keyway to pull the retainer into the plug for removal without disassembly. I was unable to locate a keying kit for these locks.

Seat/Helmet Lock



8 The seat/helmet lock is located on the left side of the motorcycle over the rear axle. This lock is easy to pick using a rake. Turning the lock 180-degrees counterclockwise will unlock the helmet holder. Turning the lock 60-degrees clockwise against spring pressure will unlock the seat. You need to hold the lock in this position until you lift the back of the seat up and free from the latch. The seat can then be pulled back and off the motorcycle. To remove this lock for disassembly, first remove the seat.

9 Remove the two T-30 tamper resistant Torx bolts from the back of the lock.

Locate the seat latch in the area the back of the seat normally covers. Remove the two 10mm nuts that hold the seat latch on and push the threaded studs down and out of the mounting holes. This will allow the latch to be pulled toward the left side of the motorcycle by the seat lock cable and provide needed slack.

10

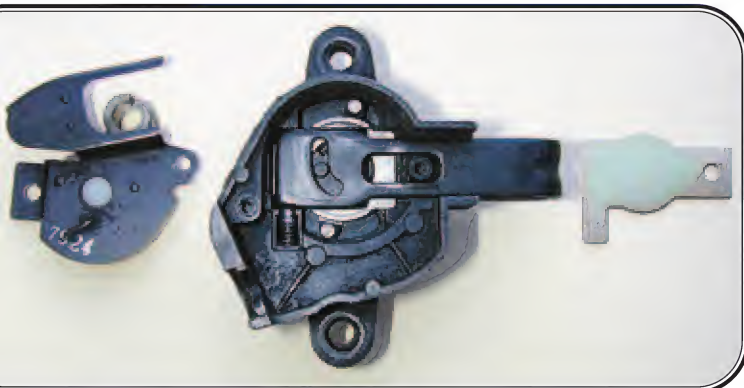




- 11** Pull the seat lock down and you can see where the end of the cable housing attaches to the lock housing.



- 12** Pull the end of the cable housing toward you and free from the lock housing. Now the cable can be moved to the slot in the cable lever and removed. Take the lock to a bench and remove the two Phillips screws holding the backing plate on. The screw on the left is covered in sludge and is hard to see in the photograph.



- 13** The backing plate with cable lever attached has been removed and placed on the left. (Note: When reassembling, there are two holes in the cable lever body that have to be aligned with the two posts on the tailpiece that are visible in the lock housing at the 1 o'clock and 7 o'clock positions. Just move the cable lever against spring pressure until the two holes slip down over the posts and allow the backing plate to seat.) The internal cover plate has been removed and placed on the right. Notice the helmet lock bolt detent and spring located at the 8 o'clock position in the housing. Be careful when removing the helmet lock bolt so the detent and spring don't get lost.

AutoEdge

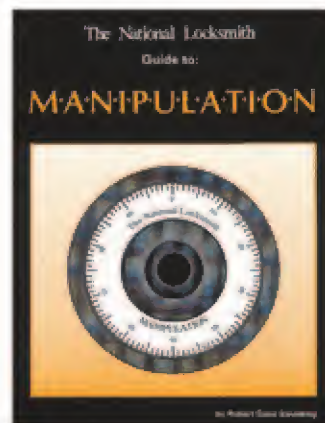


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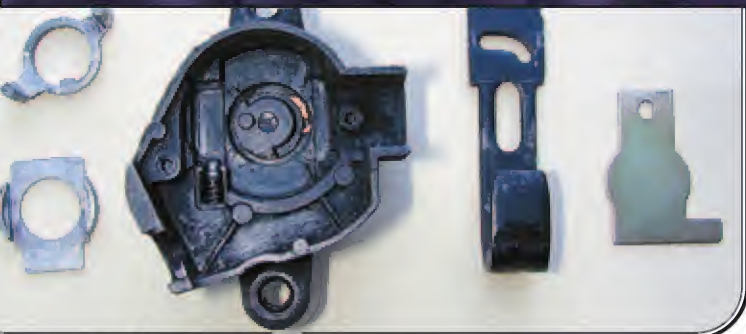
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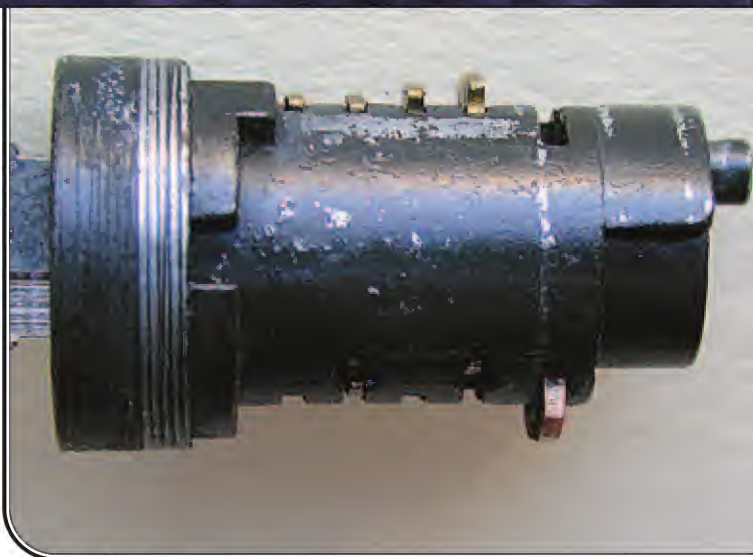
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#MAN - 1



14 The internal cover plate has been removed and placed on the far right. Then the helmet lock bolt was removed and placed on the right. Next the stop plate was removed and placed on the lower left. Finally the tailpiece was removed and placed on the upper left. Now the retaining wafer can be seen at the 2 o'clock position on the plug. Depress the retainer and push the plug out the front of the lock. Be careful not to allow the wafers to spring out of the plug when it is removed.

Ignition/Steering Lock



15 The seat lock plug contains wafer tumblers in positions 4 - 7. An X248 blank inserted into the plug shows that the depths are 2234. These wafers are the same as those used in the gas cap lock.



16

The ignition/steering lock is located on the forward edge of the handlebar bracket. The plug needs to be pushed in to turn from Off to Lock or from Lock to Off. Also, the steering has to be turned all the way to

the right or left before it will turn to the Lock position. Two shear head bolts secure this lock and the front fairing has to be removed in order to gain access to them. Removing the front fairing is very time consuming as there are many screws and parts that have to be removed. It is not easy to remove and install so I require the fairing to be removed before I will work on the ignition lock. I could tell by looking at the ignition lock that once it is removed it is disassembled the same way as the ignition lock on the 1998 Yamaha V Star Classic that I did an article on in an earlier issue. Remove two small shear head bolts that secure the facecap/sleeve and remove it and the hardened faceplate from the lock housing. The lock needs to be in the OFF position so that the lugs on the back of the plug will align with the grooves inside the housing. Then the plug can be pulled out the front. Make sure you do not lose the spring on the back of the plug. There are eight wafer tumblers all on one side of the plug. The first seven wafers are positioned by the cuts in the 7 spaces that we cut on the key. The pre-cut tip on the blank positions the eighth wafer.



17

An X248 blank with cuts of 1432234 works all of the locks on the bike.

The locks are available at Yamaha motorcycle dealers:

Ignition/Steering Part Number: 4NA-82501-01-00.
Price: \$120.84

Gas Cap Part Number: 4HN-24602-00-00.
Price: \$155.81

Seat/Helmet Part Number: 3YX-21308-00-00.
Price: \$36.60

No lock sets are available.

Codes: A7001-A8500

Blank: Ilco X248 (YM63), Curtis YM63, Silca YH35RBP

Spacing: 1=.157 2=.256 3=.354 4=.453 5=.551 6=.650 7=.748

Depths: 1=.295 2=.276 3=.256 4=.236

HPC Card Number: CMC71

ITL Number: 523

Curtis: MZ-3 cam & SU-2B carriage

Tumbler locations: 1 2 3 4 5 6 7 8

Ignition: x x x x x x x

Gas Cap: x x x x

Seat: x x x x



MOSLER VAULT DOOR ADJUSTING

by Dale W. Libby, CMS



I always enjoy a challenge. Most times I win, but sometimes I lose. When you lose it is always a learning experience. I went up against a Mosler vault door recently in which I really did not fail, but I did not fully succeed either. Here is the story.

One of my favorite customers is the Church of the Brethren General offices in Elgin, my hometown. They have a large Mosler insulated vault door on a large room to keep their church as well as financial records. The secretary, a demure woman of 5'3" called me and told me she was having trouble opening the vault door. Could I come out and fix it?

The vault door uses a Mosler CD-120 MR lock. The MR stands for Manipulation Resistant. The dialing sequence for this combination lock is 4 times left to the first number, 3 times right to the second number, 2 times left to the last number. Once you have dialed the combination to the last number, turn the dial right to Zero, pull the dial out, and continue turning to the right. If you have dialed

the combination correctly, this last turn will withdraw the combination lock bolt and the vault will open.

The left-handed vault door is shown in *photograph 1*.

The lock on this door is mounted Horizontal Right (HR). I never had any trouble with this particular lock. Whenever I worked on it to change the combination, I serviced and cleaned it very carefully. I tried the combination 1/2 number above and 1/2 number below the actual numbers of the combination. It always worked! I was wondering what had happened. *Photograph 2*, shows the inside of the open vault door with the emergency release handle in the open unlocked position.

I started to remove the back cover that protected the combination lock and the lady asked my what I was doing. She said the combination worked correctly, but the door would not open. Aha, the light dawned. The door was sticking. I closed the door and tried it myself. It did stick, in the upper right corner of the vault door.

This lady weighed only 120 pounds, and I being 6' 3" and weighing over 300 pounds still had trouble opening the door. She stated that it took 10 minutes or more to get the door open after the combination was correctly dialed. The handle would move down to the open position, but it would not open without a fight.

When this problem happens with a safe or money chest door, it is usually dragging on the bottom of the container, or at least the lower corner. Repair is usually accomplished by either shimming the hinges, or by light grinding of the touching surfaces. Worst-case scenarios would include replacement of the hinge pins themselves. On older safes, this can be a great challenge to do.

I looked at the hinges but could see no adjustment. I then spied the culprit. The brick wall that the vault door was set in had a large crack about 6 feet long above the door. I felt that this crack and the settling of the door had caused the vault door to bind in the upper left corner (opening side).



1. CD-120 MR lock, handle in open position.



2. Inside emergency handle in up or open position.

3. Vault door shimmed at 90-degree position.



4. Top and side inner panels of vault door.

Before giving up, I decided to do a little light grinding on the door and frame. It worked, a little. It did get easier for me to open the door, but our secretary did not appreciate the difference. It was minor. Before turning the problem over to someone more competent, I called my good friend Bob McCown at Fink Safe and Lock in Chicago, Illinois.

What he explained to me was news to me. I had no concept at that time how a vault door was held into place in the door opening. Bob explained to me that it was held in place with several Jack Screws. I thought the frame was bolted into the wall itself, but I was soon educated.

Bob stressed the fact that whenever I worked on the Jack Screws, if I loosened one side, then I had to tighten the other side. Also, most importantly, I was to shim the vault door open at a 90 degree angle and make sure it was solidly in place. This was a safety procedure to protect me and my customers from injury. At that time I did not realize exactly what he was talking about. He stressed the shimming of the door at least six times during our brief conversation. It had to be important, and it was.

The first thing I did with the door was to shim with wooden shims and a large screwdriver. (See *photograph 3*.) The door was solid and could not be moved. I then went to the inside of the door and as per instructions looked at the plates on the inside of the door. I had never noticed these removable plates before. These plates are held to the frame with large 3/4 inch bolts. *Photograph 4*, shows these bolts. There are two bolts showing on the header and one top bolt on the side of the left heavy frame channel.

To correctly remove these heavy formed steel frame reinforcers, it is best to bring in a socket set and a set of large open-end wrenches. Bob suggested that I remove the top header first and look there before removing the side panels.

The Jack Screw with large pressure plate is shown in *photograph 5*. It was loose, and in fact had never been tightened into place. The same was true of the left side Jack Screw. (See *photograph 6*.) Both were loose. I tightened up both screws equally and ran the setting bolt against the upper lintel and tightened down the 1-inch lock nut. Before trying the door, I looked carefully at the side of the doorframe exposed by removing the side plates.

The side frame was also Jack Screwed into position. There were no bolts or rods secured into the wall. The Jack Screws held the door in place alone. No wonder Bob had warned me about shimming the door open. If I had messed up by loosening to many bolts, the door could fall out

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#PI



5. Top right Jack Screw shown, header removed.



6. Side Jack Screw against brick wall. There is three per side.

of the brick doorframe. I then realized that the purpose of the side and top panels was to hold the door in place if the Jack Screws came loose. The very next thing I did was to replace all the panels before un-wedging the vault door. The door worked a little better, but still not good enough.

I was not sure what adjustments had to be made to cause the door to spring back into correct position, and to be truthful, I was somewhat out of my element and somewhat nervous

about the consequences of my actions. I knew it was time to quit.

At this point, about 4-hours had elapsed, and I had other jobs to complete. I gave the secretary the name, address, and phone number of Fink Safe and Lock in Chicago. I told her what to say when she called the service department. Perhaps Bob, or his servicemen would like to write the conclusion to this story and I could pass it on to you.

Since this is the first time in 40 years I was asked to align a vault door,

I was not really anxious to learn how to do it. Let the people with great expertise who know how to do this, do this. I did learn how this vault door was secured into the wall, and how, with knowledge, it could be repaired or resprung to make opening and closing of the door easy enough for a small secretary to accomplish.

So, in retrospect, open, make sure you have enough knowledge to accomplish you assigned task, and prosper! **TNL**



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#ASA - 2000

The UGHTER Side

Some Days, it Just Doesn't Pay



by
**Sara
Probasco**

“Okay, Eddie, here’s your chance,” I said to our new employee the other day.

Don was pulling an out of town service call, which left no one to answer local calls and lock-outs except Eduardo or me, and I don’t do windows, floors, or car openings. The problem was, this was Eduardo’s second day on the job, and he had no prior technical locksmith experience, other than general maintenance work at a local hospital.

“Think you can open an ‘82 Chevy?” I asked him.

“I don’t know. I’ll try,” he said. “I watched Don open a couple of vehicles yesterday.”

Admonishing him to “do no harm,” I reminded him that Don would be back in town shortly, in case he couldn’t get the vehicle open easily. My anxiety as I sent him on his way was not unlike what I’d felt the day I watched my first born board the school bus on his first day of school, so many years ago.

I’d scarcely had time to turn around, when he was back. I was afraid to ask how it had gone.

Eduardo handed me the paid ticket and put the cash in the register. Then he smiled.

“Are they all so easy?” he asked.

A twinkle in his eye told me this had not been a usual car opening. Finally, he admitted that the vehicle in question was one he recognized as belonging to a friend. He knew that the butterfly window on the passenger side had a broken latch, so he simply pushed the small window open, reached in, opened the door from the inside, and retrieved the keys. A piece of cake.

When he took the keys in to the owner’s office, his friend - pleased and surprised to see him - never asked how he had managed to get the keys out, so Eduardo didn’t tell him.

As all of you know, some are not so easy.

We have found the various roadside service companies (i.e., Chevrolet Roadside, GM Roadside, etc.) very helpful in providing key codes for their automobiles. This makes car openings a snap, not to mention making a new set of keys from scratch. If you get the right codes! And if you cut ‘em right.

Recently, we took a call from a man from Houston who was visiting in our area. He had lost the keys to his Oldsmobile on a holiday weekend, and we were trying to help him. We gave our customer GM Roadside’s 800 number, he contacted them, and they called us right back with the code numbers. Unknown to any of us at that time, the ignition required a VATS key, so cutting the code on a regular key proved useless. Once we discovered this problem, we called back to GM Roadside, but they had no way to determine the resistance value for the pellet.

“Is there anyone else who might have a key to your ignition?” Don asked the customer.

“My daughter,” the man replied, “but she’s in Houston.”

“See if you can reach her. Tell her to find a locksmith who is open today and who can interrogate a VATS key for her. She’ll need to take the key to him, get him to interrogate it, and have him call me with that information.”

Hours passed before we finally heard from the locksmith. The customer’s daughter had called all over the Houston area, trying to find a locksmith who was open and could interrogate her key. Ultimately, she’d have to drive halfway to Galveston to accomplish the task.

Once we had the correct information, cutting the proper key was no problem.

The very next day, in a totally unrelated incident, a third party called from New Braunfels, a town roughly one hundred miles northeast of us. A family member was stranded out in the country. He thought the keys were locked in the trunk. The vehicle was described as a ‘98 “Town Car,” which we assumed to be a Lincoln. But then, you know where “assume” can get you!

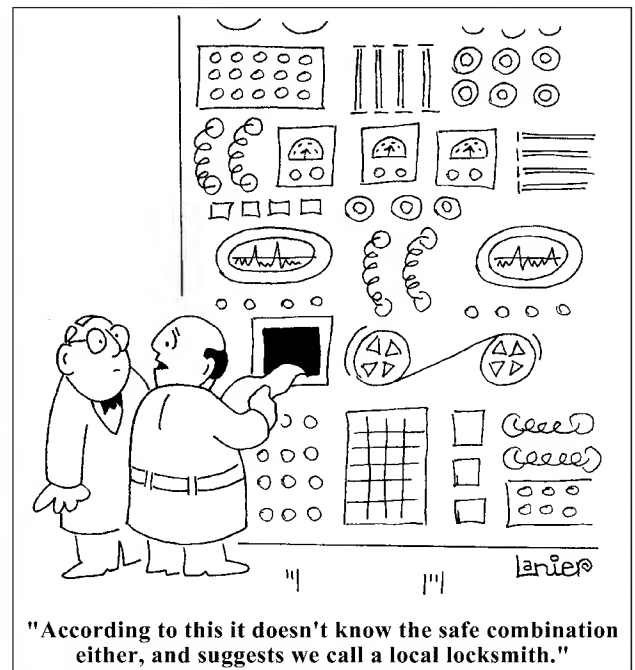
“We’ll be happy to go out to the country and unlock the trunk for him,” we informed the calling party, “but if the keys are not there, we have no way to make a new set from scratch. That particular model requires a special transponder key, and we don’t have the equipment to interrogate it.”

“Okay,” the man said.

“You realize we’ll have to charge him for coming, whether the keys are inside or not?”

“I figured.”

Don got directions and started out. Down the highway he went, onto a ranch-to-market road, through a couple of gates and into the heart of a goat ranch. When he finally arrived at his destination, a man was there to meet him.



"That's the car, over there," the fellow said, pointing to a '91 Buick Park Avenue - a far cry from the '98 Lincoln Town Car Don was expecting to find.

Don called Buick Roadside, and they gave him the key codes for the vehicle, including the VATS information. He cut the keys by code. The trunk wouldn't open. He decided to remove the glove box lock and read the wafers. In order to accomplish this, he had to carefully separate the front and back panels on the glove box door to get the cylinder out. Then he made a key and was ready to progression the trunk lock from that.

In the meantime, the customer had disappeared. Going to the ranch house about a quarter mile away, he had telephoned someone who had a set of keys for the vehicle in question and had asked them to make a copy of both sides of the keys with their copy machine and fax the prints to him. By the time Don had the glove box key made, the customer proudly presented him with the faxed copies of the keys.

Don looked at the glove box key he had just cut. He looked at the code numbers Buick Roadside had given him. He looked at the faxed page. He looked at the key he had cut by code (that hadn't worked) Hmmm. Everything looked the same except the one he had cut by code. That didn't make sense.

Then he noticed something. Somehow, he had managed to cut two of the code numbers in reverse order. No wonder the key wouldn't open the trunk. Back to the drawing board he went, re-cut the trunk key and voila, it popped right open. There lay the keys, inside the trunk.

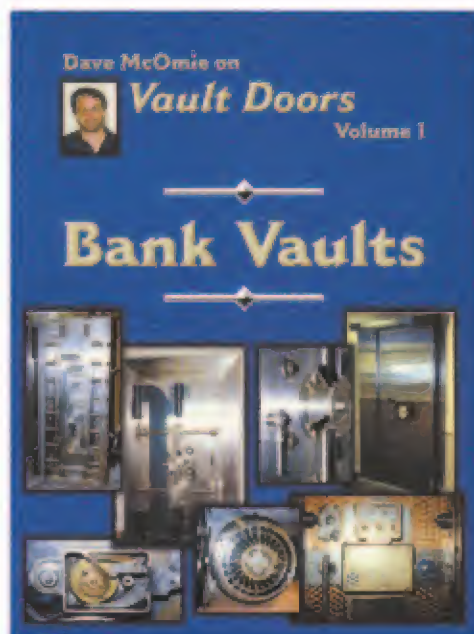
All this activity out in the field had attracted a small crowd by now - a group of Good Old Boys who were standing around popping tops on a few cold ones and offering suggestions while they pretended to be feeding the goats.

The customer offered Don a beer, hoping to get his price down for coming all that way, but Don wasn't in a bargaining mood.

"I think I'll learn to be a locksmith," the customer said when Don handed him the bill. "I've been working for Iowa Beef ten years, and I make less for a full day's wages than you're charging me for just opening up my car trunk."

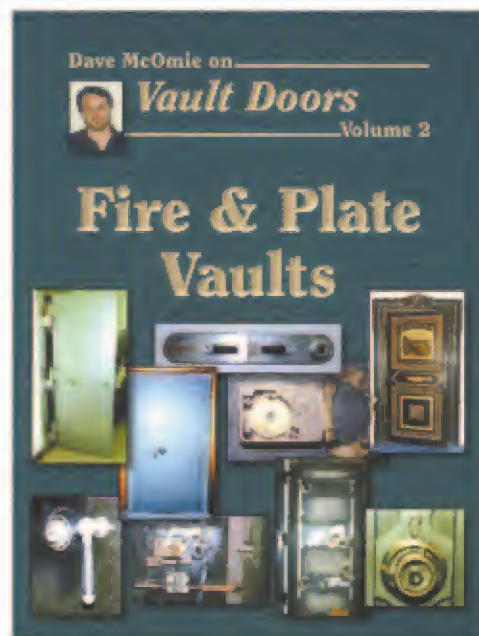
"What can I say?" Don replied. "It's chicken some days, and feathers the next. But at least it's a good reason to get up in the morning." - Most days! **TNL**

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Quick Entry

UPDATE

by
Steve
Young



FORD SUPER-DUTY TRUCKS AND EXCURSION

The Ford Super-Duty trucks were first introduced late in 1998. (See *photograph 1.*) This led to a small amount of confusion in the 1998 model year because Ford had two totally different trucks that were both marketed under the name "F-250." The F-250 that was sold in the early part of the year was a 3/4 ton truck that used the same basic body as the F-150. The F-250 that was sold in the latter part of the year was the first of the new Super-Duty trucks.

The Super-Duty trucks are easily identified by the large rectangular door handle assembly and the "stair-step" in the base of the window. (See *photograph 2.*) The forward portion of the window is lower than the rear to allow the driver a better view of the outside rear-view mirror. In 1999 Ford expanded the PATS transponder system to almost all of the vehicles that they make. Only the Super-Duty trucks and the one-ton vans are not equipped with the PATS system as standard equipment.

The Ford Excursion was introduced in the 2000 model year and uses a body that is essentially a sport-utility version of the Super-Duty truck body. (See *photograph 3.*) The Excursion shares about 40% of its parts with the Super-duty trucks, including the front doors and lock assemblies. The Excursion however, is equipped with the PATS system as standard equipment.

The procedure for unlocking the Excursion is exactly the same as for unlocking the Super-Duty Trucks.



1. 1999 Ford F-650 Super-Duty truck.

2. The Super-Duty trucks and the Excursion have the distinctive "stair-step" at the base of the window and a rectangular outside handle assembly.



3. The 2000 Ford Excursion.

Quick Reference Guide

Vehicle:

1998 - 2000 Ford Super-Duty trucks (F-250, F-350, F-450, F-550 and F-650)
 2000 Ford Excursion.

Direction Of Turn:

Counter clockwise (pass. side)

Tool:

TT-1008 or TT-1017

Lock System:

8-Cut Ford, Sidebar Ignition and Plate-Tumbler (wafer) Style Door Locks.

Security System:

PATS II (Transponder) on Excursion only.

Lock Manufacturer:

Strattec

Code Series:

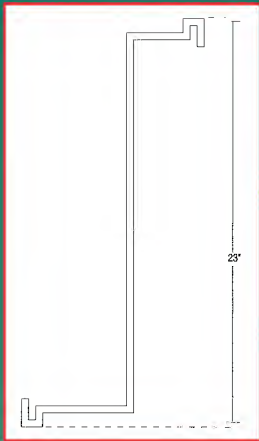
0001X-1706X

Transponder Key Blank:

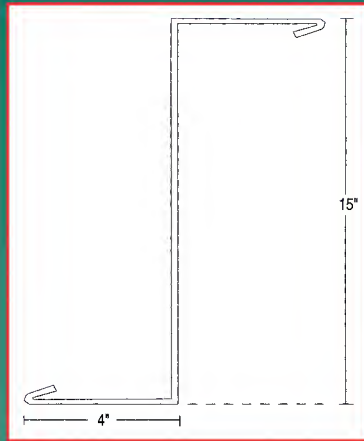
Strattec: 598333; Ilco: H72-PT; Jet: H72-PHT; Silca: Fo38RT3; Curtis: TKB-H75; Orion: T30H72

Non-Transponder Key Blank:

Strattec: 597638; Ilco: 1196FD, H-75-NP; Silca: FO40R; Curtis: H-75; Orion: H75



A. The TT-1008 tool.



B. The TT-1017 tool.

These vehicles are equipped with a vertical linkage rod that can be attacked with either the TT-1008 or the TT-1017 tool. The inner skin of the door shields the base of the lock button so that the "S" tools such as the TT-1007 and TT-1010 cannot attack it.

To use the TT-1008 tool (see illustration A) begin by wedging open the base of the window near the rear. (See photograph 4.) Insert the long end of the TT-1008 into the door and hook it onto the diagonal bend in the vertical linkage rod. This bend is located about four inches below the base of the window.

Photograph 5, is a view from inside of the door showing the long end of the TT-1008 as it hooks onto the linkage rod. The linkage can be located easily by feel while watching the inside lock button for movement, or an inspection light can be used to locate the linkage visually. Once the tool is hooked onto the linkage rod, pull upward to unlock the door. (See photograph 6.)

To use the TT-1017 tool (see illustration B) follow the same basic procedure as above but insert the tool so that you grip the linkage rod from the outboard side of the door. Once again, the linkage can be located easily by feel or it can be located visually with the use of an inspection light.

Photograph 7, shows a view through a small opening in the inner skin of the door of both the TT-1008 and the TT-1017 as they grip the linkage rod.

Some of these vehicles are so large that I need to use a stepladder to get high enough to see down into the door. I generally unlock these vehicles by feel for that reason. **TNL**



4. Wedge open the base of the window at the rear.



6. Pull up on the linkage rod to unlock the door.



5. Inside the door the tool hooks onto a diagonal bend in the vertical linkage rod.



7. The TT-1008 (left) and the TT-1017 as they hook onto the linkage rod. Note that the inner skin of the door shields the upper portion of the linkage.

KEY CODES

Corbin/Kennedy Tool Box Series T1-T1050

The HPC 1200CMB and
1200PCH code cards for
this code series are
between pages 94-97.

Key Blanks: CEA: COR24S, Cole: CO26, Curtis:
CO-26, DL: OOV, ESP: CO26, Errebi: CO28R,
Ezy Cut: C61, Fuki: S-77, HD: 1000V, Ilco:
1000V, Ilco EZ: CO26, JMA: COR-24, Kis: CO6,
Kraga: 104, Lotus: CR29, Orion: 1000V, RR:
CN12, R Clover: R27, Silca: CB13R, Taylor: 20V

Number of Cuts: 6

M.A.C.S.: 2

Key Gauged: Shoulder

Center of First Cut: .157

Cut to Cut Spacings: .093

Cut Depth Increments: .014

Spacings: 1 - .157, 2 - .248, 3 - .343, 4 - .437,
5 - .530, 6 - .626

Depths: 1 = .248, 2 = .234, 3 = .220, 4 = .207,
5 = .193

HPC 1200CMB: Code Card: C11, Jaw: A,
Cutter: CW-1011, Gauge From: Shoulder

HPC 1200PCH (Punch): PCH Card: C11,
Punch: PCH-1011, Jaw: A

Silca UnoCode: Card Number: N/A

HPC CodeMax: DSD #: 12, Jaw: A, Cutter: 1011

Curtis No. 15 Code Cutter: Cam-Set: N/A,
Carriage: N/A

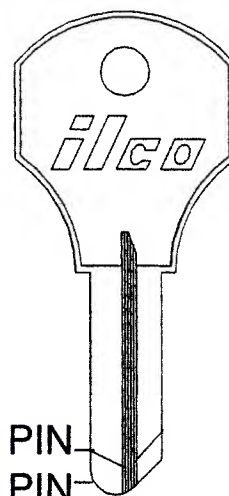
Framon #2: Cuts Start at: .157, Spacing: .093

Block #: 1, Depth Increments: .015, Cutter:
FC8445, **Key Clamping Info:** Use flip-up shoulder
stop.

A-1 Pack-A-Punch: Quick Change Kit: N/A,

Punch: N/A, Die: N/A,

ITL 9000 & 950: Manufacturer ID: 535



ILCO

1	113133	32	115535	63	133551	94	151335	125	153551	156	313115
2	113135	33	131133	64	133553	95	151351	126	153553	157	313131
3	113153	34	131135	65	135113	96	151353	127	155113	158	313135
4	113155	35	131153	66	135115	97	151355	128	155115	159	313151
5	113313	36	131155	67	135131	98	151513	129	155131	160	313153
6	113315	37	131313	68	135133	99	151515	130	155133	161	313155
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9	113355	40	131335	71	135153	102	151535	133	155153	164	313351
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31	115533	62	133535	93	151331	124	153535	155	313113	186	315351

Corbin/Kennedy Tool Box Series

T1-T1050

187	315353	246	351535	305	513315	364	113535	423	135311	482	155151
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Corbin/Kennedy Tool Box Series

T1-T1050

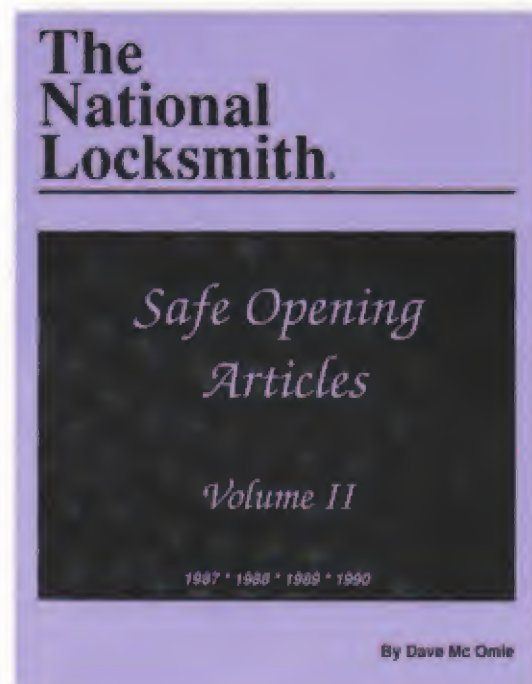
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544	315535	602	353135	660	513513	718	115135	776	135331	834	155311
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555	331513	613	353531	671	515135	729	115515	787	151133	845	311351
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557	331531	615	353551	673	515153	731	115533	789	151153	847	311355
558	331535	616	353553	674	515311	732	115535	790	151155	848	311513
559	331551	617	355113	675	515313	733	131133	791	151313	849	311515
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562	335115	620	355133	678	515335	736	131155	794	151335	852	311535
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576	335535	634	511335	692	531313	750	131553	808	153133	866	313511
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Corbin/Kennedy Tool Box Series T1-T1050

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946	351535	1005	513315								
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TNL

Safe Opening Articles



Dave McOmie's original articles from
when he first started writing for
The National Locksmith are
reprinted in this book.

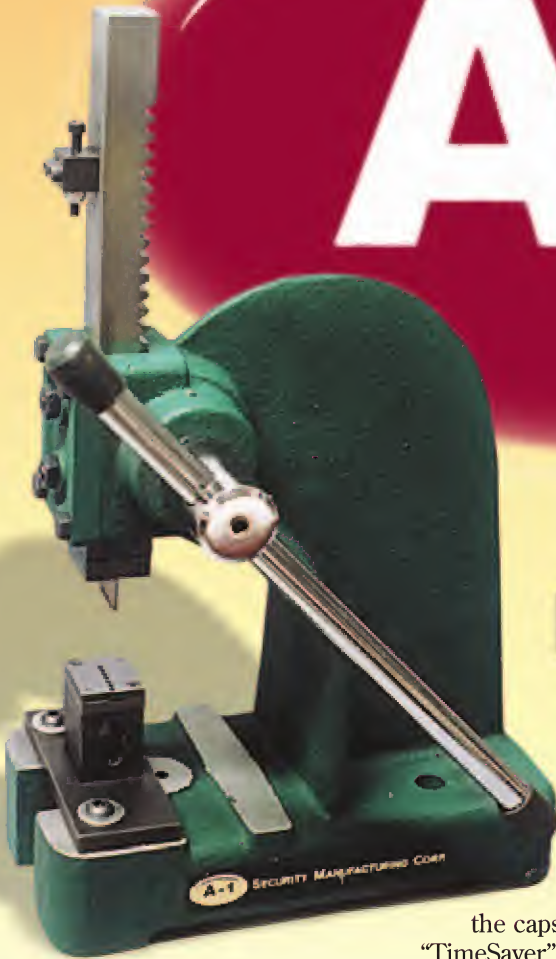
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#SA - 2

A-1

Revolutionary IC Capping Press

by Sal Dulcamaro, CML



1. The #CAP5 "CapSaver" capping press.



2. A core being loaded.



3. The CapSaver strips.

A-1 has recently introduced a revolutionary new concept in IC capping presses. The #CAP5 CapSaver capping press in *photograph 1*, caps the pin chambers like any other capping press. The unique feature of this tool is that it actually punches and forms the caps as it seats them into the core. I suppose they could have called it the "TimeSaver" instead, because it does speed up the process of capping Best-style I-Cores. Instead of using pre-made individual chamber caps, it uses special "CapSaver strips" to cap all the chambers of a core at once. I'll explain how it works.

— Using the "CapSaver" Capping Press

Before starting the capping process, the unit should be bolted or clamped down. Since more force is needed to punch, form and press the caps than is normally used for standard presses, the additional force of the lever handle could tip the unit over if not bolted down properly. *Photograph 2*, shows a core being loaded into the capping block. A flat brass strip is shown in *photograph 3*, which is an example of the CapSaver strips. This is the blank stock that is used to create the caps for the chambers. There is a slot in the top of the capping block to hold the metal strip. I am inserting the strip in *photograph 4*.

I believe I received a prototype unit in which the instructions indicated the need to hold the core in the capping block so it would not move preventing the chambers from aligning with the holes in the top of the capping block. The actual production models may (or should) have some feature to keep the core from moving. The next step is to rotate the handle so that the press moves downward.

If you hadn't bolted or clamped the unit down, this is where you would have



4. Inserting the CapSaver strip.

problems. *Photograph 5*, shows the press all the way in the down position. An inch or so higher and the punches would just be making contact with the brass strip. You must apply enough force to punch through the thin brass strip and then continue downward as the chambers are capped. A closer view can be seen in *photograph 6*. You must continue pressing the handle downward until the newly formed caps seat into the tops of the chamber openings. When you turn the handle back, the ram and punches will lift up above the capping block.

Photograph 7, shows the strip with seven small holes and the core with six bright brass caps at the tops of the chambers. The seventh cap falls inside the fixture unless you are using a core that has seven chambers.

Once the unit is mounted and set up, the capping process is very fast and easy. There is no need to individually drop tiny little caps in each of the chambers. It is both less troublesome and less time consuming. Each strip can be used four times.

Photograph 8, shows a blank strip, a strip used once and a strip used four times. The capped core is to their left, and a few loose brass caps can be seen just below the core. It is important that the caps not be pressed in too shallow or too deep. Before you go into full production you will need to make some adjustments to make sure everything operates smoothly.

Setup and adjustments to make sure the caps seat into the tops of the I-Core pin chambers properly, you may need to adjust the stop. The adjustment screw of the stop can be seen in *photograph 9*. The ram has not been fully lowered and the bottom tip of the screw has not yet hit the stop surface. By adjusting the screw and



5. The press in the down position.

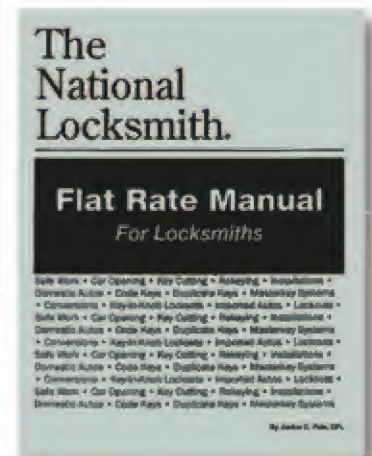


6. A close-up of the capping process.



7. The strip with seven small holes.

Flat Rate Manual

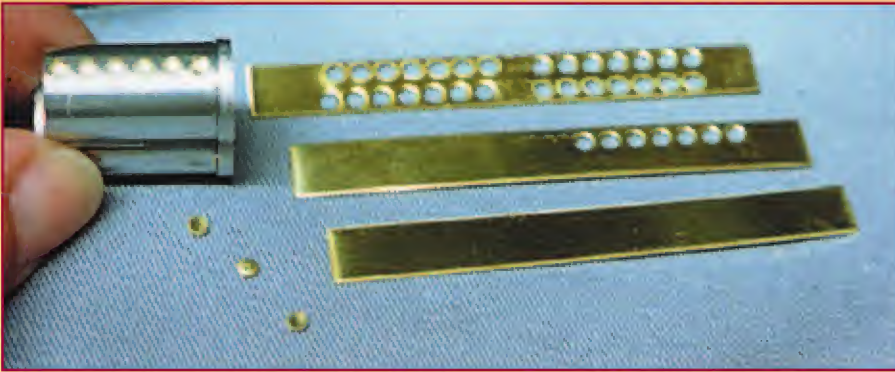


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#FRM - 1




8. Each strip can be used four times.

nut you can control how far the punches will seat the caps.

Photograph 10, shows a wider view of the CapSaver press. The lever handle is almost fully turned to seat the punches. If the tip of the stop screw goes down, it will shorten the stroke and cause the caps to seat shallower. If the screw goes further up, the stroke will be lengthened and the caps will seat deeper.

Another important consideration is where the handle is positioned when operating the press. At the very end of the stroke, you will need to have the handle positioned in such a way to give you the most leverage. Otherwise it will be awkward for the punches to break through the brass strip.

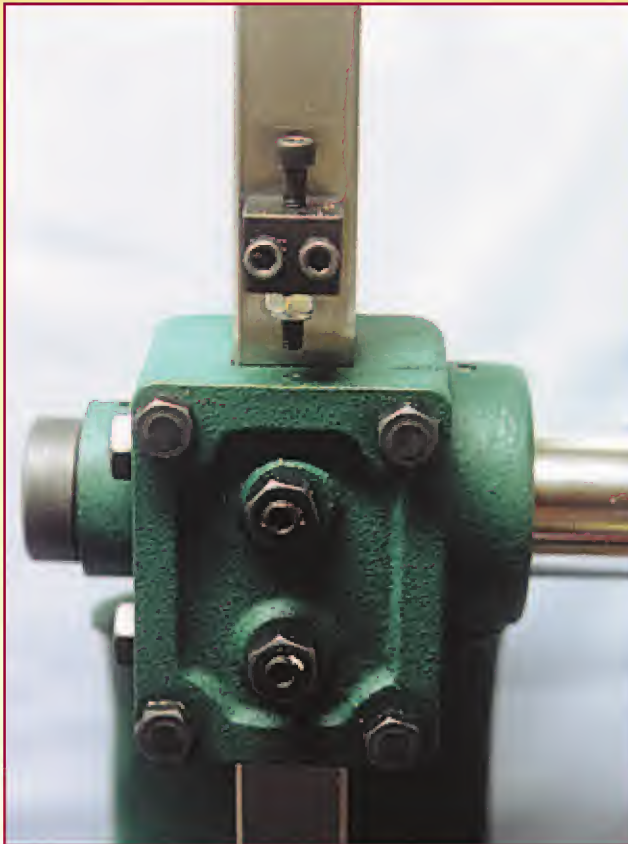
The setscrew of the set collar was loosened in *photograph 11*, to allow the handle to pull out. With it partially pulled out in *photograph 12*, the gear teeth are visible. All that is needed is to pull out far enough to disengage the teeth and then reposition and reinsert the handle. The set collar would then be reattached and the setscrew tightened. You should position the handle so that it is comfortable to use. That would probably be to pull down on the handle if you will operate it while seated, or push down on the handle if you operate it while standing. If you will be capping many cores, you will be dealing with repetitive movements. It makes sense to make the operation as comfortable as possible.

It appears that the CapSaver press can be very effective in making I-Core capping both faster and more efficient. The #CAP5 should be available from your suppliers that sell quality A-1 tools. If you cannot locate it at your suppliers, contact: A-1 Security Manufacturing Corp., 3001 West Moore Street, Richmond, VA 23230. Phone: (804) 359-9003. FAX: (804) 359-9415. Toll Free: (877) 725-A1A1 (2121). Circle number 261 on Rapid Reply. 

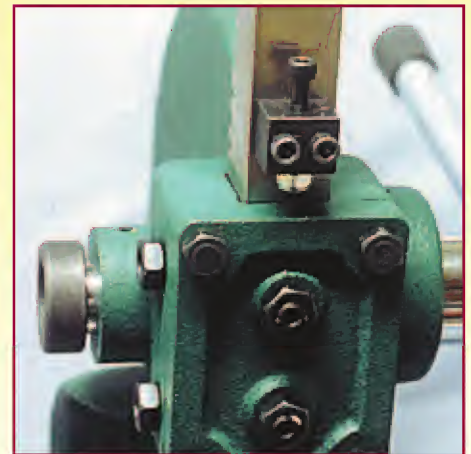
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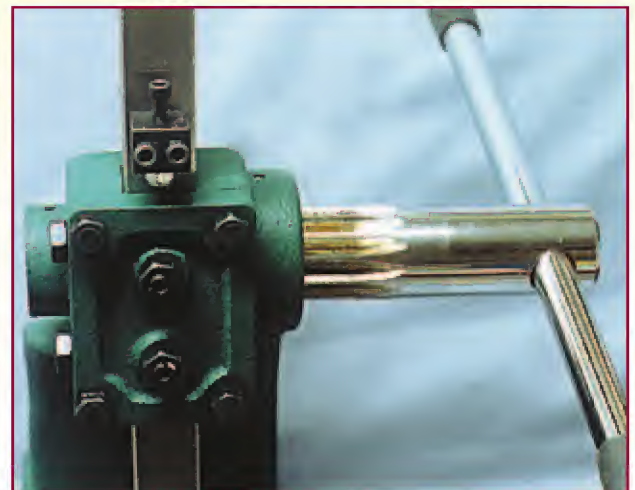
10. A wider view of the CapSaver press.



9. The adjustment screw.



11. The lever set collar was loosened.



12. The lever gear teeth are visible.

2000 Mitsubishi Eclipse

by Nelson Rivera

The stunning popularity of Sports Utility Vehicles has created an explosion of new SUV's on the market. Automakers are battling each other to build bigger and more attractive car/truck/van hybrids. While virtually every manufacturer has added new vehicles to their lines to accommodate the newest trend in automobiles, most manufacturers are still cranking out roughly the same number of models.



1. The Mitsubishi Eclipse.

A little noticed side effect of the SUV boom has been the beginning of the end of America's love affair with the sports car. The Mitsubishi 3000GT, the Mazda RX7 and the legendary Nissan 300ZX are just a few of the long running models of sports cars given the ax in recent years. The demise of these models is partly due to the rise in popularity of SUV's. Previously, most automakers made at least two sports cars- a high-end version, fast and expensive, and a mid-level version, more affordable and less lethal. For example, Corvette and Camaro. These days, most auto lines include just one sports car, which is forced to be all things to all people, a tough job for a sports car.

With the demise of the 3000GT, the Eclipse has emerged as 'the' sports car for the people over at Mitsubishi. (See *photograph 1.*) As such, the Eclipse is newly upgraded for 2000, and what a difference it is. It appears Mitsubishi

merged the old Eclipse with the old 3000GT to come up with this new number. Judging by early sales figures, it appears that whatever they did in the laboratory turned out right.

While most casual observers will notice the Eclipse's sleek lines and curves, professional locksmiths should immediately notice another feature — frameless windows! This is an important feature as far as openings are concerned, as sports cars are coming equipped with increasingly sophisticated locking systems, making openings more challenging.

For this opening, we will be using the High Tech Tools Remote Access System (RAS). It allows locksmiths to custom configure their own opening tool. It is inserted in the side of a frameless window to remotely access a door lock button or handle.



2. Inserting a Strip Saver.



3. Insert a double wedge.



4. Insert a single wedge in the center of the double wedge.



5. Insert the RAS tool between the two wedges.



6. Position the RAS tool over the lock button.

This unique and versatile tool is the predecessor to the current rash of opening tools which effect openings by bending doors to access door lock handles from inside the vehicle. No owner of a new sports car wants his or her door bent or paint chipped. Fortunately the Eclipse features frameless windows and the RAS can access the door lock button.

Using the passenger side door, begin by inserting a Strip Saver between the window and the weather stripping close to the top portion of the window. (*See photograph 2.*) You will insert a total of two (2) strip savers to facilitate the entry of the wedge. Next, insert the double wedge between the window and the strip savers already in place. (*See photograph 3.*) The double wedge is important because it creates the space required to perform this opening properly and safely.

After the double wedge is firmly in place, insert a single wedge face down, in the center of the double wedge. (*See photograph 4.*) This is a step many locksmiths choose to skip because it does not directly open the door, however, this step is as important as any. Why? Because the glass on automobiles is tempered, and tempered glass does not crack, it shatters. Do your customer and yourself a favor and insert the top single wedge.

Next, insert the RAS tool between the two wedges to insure the metal does not come in direct contact with the glass. (*See photograph 5.*) Once inserted, hold the wedges to keep them in place and position the RAS tool over the lock button. (*See photograph 6.*)

The objective is to position the working tip of the tool to pull the door button lock and unlock the door. Getting the movements of the tool may take a little practice at first, but once you get the hang of it you will be an expert using the RAS.

This method is safe and effective, but is recommended only for use in automobiles with frameless windows.



BUSINESS BRIEFS

Keri System Acquires Marlee Electronics

Keri Systems Inc. has acquired Marlee Electronics, an established manufacturer of telephone entry systems for both the commercial and residential markets. The marriage of the two companies will bring superior telephone entry products to Keri's vast dealer and distribution channel. It is another step in providing a full range of access related products to their customers.

For further information call: 800-260-5265; Fax 408-441-0309; Circle Reply #281.

WMA, Inc. Representing Zero International



Zero International has appointed WMA, Inc. as its sales representative in Northern Texas. WMA is now responsible for specification and sales of Zero's entire line of specialized sealing systems for doors and windows, high-performance continuous hinges and Traction Tread™ systems for door saddles and stair nosings.

For more information call: 800-635-5335; Fax 800-851-0000; E-mail: Zero@zerointernational.com; Web: www.zerointernational.com.; Circle Reply #282.

American Lock Signs Licensing Pact With NFL Properties

The American Lock Company has signed an unprecedented marketing agreement with NFL

Properties. The multi-year licensing agreement begins with the upcoming 2000-2001 season and permits American Lock to market padlocks bearing the logos of all 31 National Football League teams.

For more information call: (708) 534-2000; Fax: (708) 534-0531; Web: www.americanlock.com; Circle Reply #283.

Shattergard Rejects 1.7 Million-Dollar Offer

Shattergard Inc. has officially rejected a 1.7 million-dollar offer to purchase their trademarked name of Shattergard.

Shattergard is a worldwide provider and installer of transparent virtually impenetrable film that applies to glass to prevent shattering. Shattergard films are utilized worldwide to defend against burglaries, vandalism, terrorism and natural disasters. The ShatterGard Company has turned down numerous offers to go public with an ipo.

For more information visit them on the web at: www.shattergard.com; Circle Reply #284.

SecuraKey Appoints VP of Business Development



SecuraKey has created the position of VP Business Development to focus the company's long-term goals and develop strategic alliances. Kenneth B. Cecil has been appointed to head this new effort. For the last several years Ken has consulted for the company and directed its international expansion. Circle #285.

For more information call: 800-891-0020 or 818-882-0020.

New Facilities for Dugmore & Duncan



Dugmore & Duncan of California has a brand new facility at a brand new site. Their new California location is: 1260 Graphite Drive, Corona, CA 92881. Visit them on the web at www.dugmore.com for more information. Circle #286.

Unican Signs Supplier Agreement with Chubb

Unican Security Systems Ltd. has concluded a long-term international agreement with Chubb Security Systems for the supply of safe locks and safe/vault components. For Unican, this agreement represents a significant growth in sales volume with Chubb and further strengthens its position in the safe and vault industry. Circle Reply #287.

Fran Castle Named Marketing Communications Manager

Fran Castle has been appointed Marketing Communications Manager for Ingersoll-Rand's Security and Safety Group. Castle has over 15 years of marketing and marketing communications management experience. Circle Reply #288.



Schlage Lock Introduces Holdback Function

A new holdback function available on Schlage mortise locks with lever trim makes it possible to retract the latchbolt by key from either

side of the door to permit push-pull operation. This saves wear and tear on the mechanism and reduces noise during frequent use, while also allowing easy entry through doors equipped with only an exterior pull handle.

For more information call: (719) 264-5300; Web: www.schlage.com; Circle Reply #289.

Unican Security Systems Ltd. Acquires Mas-Hamilton Group, Inc.

Unican Security Systems Ltd. announced that it has entered into an agreement to acquire all of the shares of the Mas-Hamilton Group, Inc., based in Lexington, Kentucky. The transaction is subject to regulatory approval and is expected to close. Purchase price of the acquisition was not disclosed and was paid in cash. Circle Reply #290.

Security 2000 International Security Exhibition

Security 2000, the largest international trade fair for the security industry, will be taking place at the Messe Essen Exhibition Complex in Germany from October 10-13, 2000.

For more info call: (212) 974-8457; Fax: (212) 262-5085; Circle #301; E-mail: karen@essentradeshows.com

DynaLock Corp. Announces Sales Representatives

DynaLock Corporation has appointed Hughes Agency as Sales Representatives for Contract Hardware, Locksmith and Access/Security accounts in Oregon, Alaska and Washington. Hughes Agency's main office is in Auburn, Washington. Circle Reply #302. **INL**

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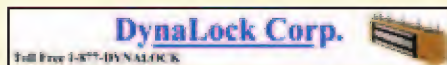
info@abloy.ca

Adesco Safe Manufacturing Co.



<http://www.adesco.com>

Dynalock Corp.



<http://www.dynalock.com>

HPC, Inc.



<http://www.hpcworld.com>

International Locking Devices, Ltd.



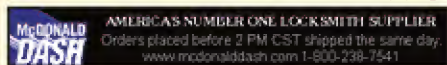
<http://www.gatelock.com>

MAG Security



<http://www.magsecurity.com>

McDonald DASH Locksmith Supply



<http://www.mcdonalddash.com>

Monaco Lock



<http://www.monacolock.com>

National Auto Lock Service, Inc.



<http://www.laserkey.com>

WEB REVIEW

KustomKey

<http://www.kustomkey.com>



Kustom Key, Inc. has been in business since 1972 offering custom incised and embossed keys for locksmiths. Their web site is one of the best we have seen in a long time.

We especially like two features. One is the online catalog which loads very quickly, and shows graphics of all the products with comprehensive descriptions. It's a pleasure to browse a site which not only contains an online catalog, but one which is produced in html so that it runs fast.

The other really excellent portion of this site is the comprehensive Keyway Cross Reference. It also runs very fast and allows you to look up a lock and then see the blank number assigned to it for each manufacturer that makes the key.

Kustom Key has made it easy to order online in their site, and try the Trading Post section where you can buy, sell or trade locksmith equipment.



Omaha Wholesale Hardware



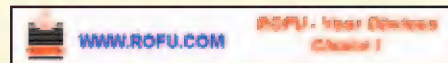
<http://www.omahawh.com>

RA Lock Co.



<http://www.rlindustries.com>

ROFU International Corp.



<http://www.rofu.com>

Security Resources, Inc.



<http://www.techtrainproductions.com>

ShatterGard Security Window Film



<http://www.shattergard.com>

Sieveking Products Co.



<http://www.sievekingprodco.com>

Tanner Bolt & Nut Corp.



<http://www.tannerbolt.com>

Wadsworth-White Wholesale



<http://www.wadswhite.com>

TNL

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**Taking
Industry Products
for a**

**TEST
DRIVE!**

Founded in 1924, ABUS, which stands for A August B Bremicker U und (and) S Sohne (Sons), has long been known for manufacturing high quality padlocks. Since its inception, the ABUS philosophy was to produce not only the best padlocks available, but also to have the widest variety of padlocks. In the 1960's the product line grew to some 300 different locks; the smallest being 15 mm to the largest of 90 mm. ABUS offers locks for all purposes starting with low price utility locks to top security lever and cylinder locks. Some of the top security locks such as the stainless steel DISKUS series is used worldwide and known for its high security standards and durability. In some European countries insurance companies recommend ABUS locks for added premium discounts.

The padlock line has since been supplemented with some home security items such as door chains, lockable and alarm chains, door guards, heavy-duty bolts, hasps, staples, padlock cables, pin kits and a complete range of bike and motorbike locks. Today ABUS enjoys leading market positions in most of Europe, plus a large share of the lock markets in North America.

PRODUCT FEATURES: The 83 Series padlock is a rekeyable line of locks that can be keyed to most popular OEM keyways. The 83 Series is available in three sizes: Small 83/45, Medium 83/50 and Large 83/55. All feature the patented ABUS Z-bar, which allows the lock to be converted to either a key retaining or non-key retaining function. With the Z-bar in place the lock is key retaining. Lift out the Z-bar and the lock is non-key retaining.

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ABUS

83 Series Padlocks

All 83 Series padlocks come "0" bitted with 6 pin cylinders in the OEM keyway specified. Available OEM keyways are: Arrow; Corbin 60, 59, A1, A2, B1, B2; Kwik-set; Russwin D1, D2, D3, D4; Sargent LA, LB, LC; Schlage C and C-L; Weiser-Falcon and Yale No. 8.

CONSTRUCTION:

The 83/45 features a solid 1-3/4" wide brass body with a 5/16" shackle. The shackle has a 1" vertical clearance and a 15/16" horizontal clearance.

The 83/50 features a nickel plated 2" wide brass body with a 3/8" shackle. The shackle has a 1-1/16" vertical clearance and a 15/16" horizontal clearance.

The 83/55 Series features a solid 2-1/4" wide steel body and a thick 7/16" special alloy core hardened shackle available in 1" to 4". The 83/55 features a unique body design, which allows for extra shackle height clearance.

Internally, specially coated double ball bearing locking balls resist rust and offer high tensile and torsion strength. A stainless steel drive bolt spring is used for increased longevity and corrosion resistance as well.

SERVICE PROCEDURES:

Featuring the ABUS exclusive fast pinning cylinders, loading pins is quick and easy. To remove the cylinder to rekey, simply open the shackle and remove the cylinder retaining screw



in the shackle receptacle. With the cylinder removed rotate the plug 180-degrees. Drop the old pins out the bottom of the cylinder and replace with new. There is no need to disassemble the cylinder or use a plug follower.

To replace or remove a shackle, there is an easy shackle change feature built into the drive bolt. The shackle can be changed without taking the lock apart. Simply turn the drive bolt 90-degrees and the shackle is removed.

The unique key retaining or non-key retaining Z-bar is free floating and easily removed or replaced in seconds.

PRICE: The suggested list price for the 83/45 is \$22.65. The 83/50 is \$24.65 and the 83/55 is \$32.95. The price is the same for each no matter which OEM cylinder is specified.

CONCLUSION: As with all ABUS products, manufacturing fit and feel is excellent. With its unique Z-bar feature, fast pinning cylinders and quick shackle change capabilities, the ABUS 83 Series of OEM rekeyable padlocks is hard to beat.

For more information on ABUS products contact:

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Fax: (612) 509-9939
E-mail: 74511.1570@compuserve.com
Web: www.abus.com
Circle 249 on Rapid Reply. **RL**

IN SUMMARY:

DESCRIPTION: The 83 Series padlocks offer rekeyable OEM keyways.

PRICE: \$22.65-\$32.95

COMMENTS: Manufacturing fit and feel is excellent.

TEST DRIVE RESULTS: With all its features, the ABUS 83 Series is hard to beat.